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THE

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A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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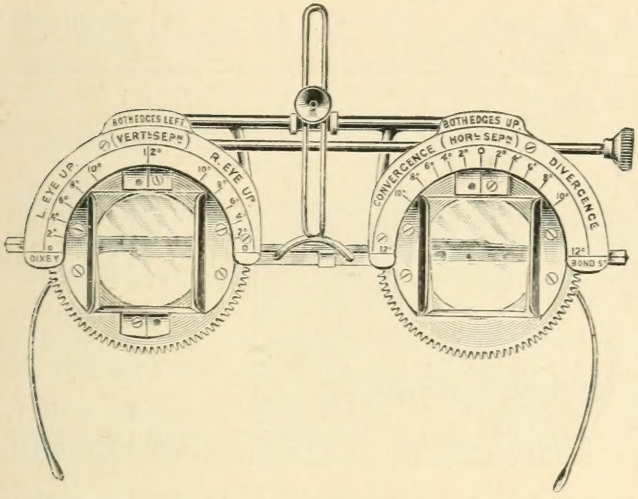

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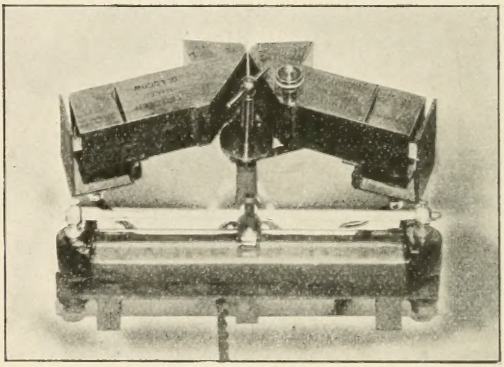

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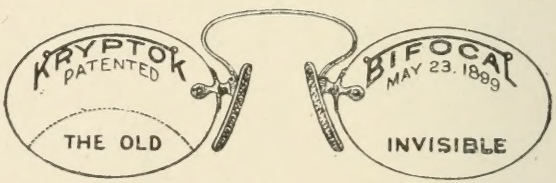

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A MONTHLY REVIEW OF CURRENT OPHTHALMOLOGY.

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ORIGINAL COMMUNICATIONS.

NINE CASES OF OCULAR TUBERCULOSIS TREATED BY INJECTIONS OF TUBERCULIN T.R.* CONTROLLED BY THE OPSONIC INDEX.

BY

W. I. HANCOCK, F.R.C.S., AND M. S. MAYOU, F.R.C.S.,

ASSISTANT SURGEONS TO THE CENTRAL LONDON OPHTHALMIC HOSPITAL, ETC.

The cases recorded below in some detail came under our observation at the Central London Ophthalmic Hospital, and

* *Tuberculin Rückstand.*

the blood examinations were carried out in the laboratories of that institution. The cases investigated were 5 cases of tuberculous iritis (4 conglomerate and 1 miliary) and 4 cases of tuberculous scleritis.

Tubercle of the Iris.

Recognising the difficulty in the differential diagnosis of tuberculous iritis, we subjected all the cases to a prolonged course of antisyphilitic treatment, and it was only after this had failed that we felt justified in making the diagnosis. That every case was tuberculous was shown by the well-marked local reaction following the injections of the T.R. The more recent advance in the differential diagnosis by heating the serum was unknown to us in our earlier investigations.

Case I.—W. N., male, *æt.* 3 years, admitted into the Central London Ophthalmic Hospital on December 16th, 1905. The patient, a healthy, well-developed boy, was first seen with a severe ulceration and diffuse infiltration of the left cornea, said to have followed an injury. He was seen again on January 17th and 24th, and on the latter date the corneal ulcer had improved, but there was still much ciliary injection with iritis. On January 31st, several nodules appeared covering almost the whole iris, associated with a large amount of "mutton fat" punctate keratitis. No specific or tuberculous history could be obtained, the case being probably one of primary inoculation through the cornea. On February 2nd, the opsonic index for tubercle bacillus was ·81. On February 3rd, $\frac{1}{750}$th m.g. of tuberculin was given.

On February 22nd, the opsonic index had risen to 1·1 and the eye was steadily improving. A further $\frac{1}{500}$th m.g. was given.

On March 8th, the nodules on the iris had practically disappeared, the opsonic index being 1·6 and another $\frac{1}{1000}$th m.g. of tuberculin was given.

On April 4th, the opsonic index was 1·9. The eye had much improved, and the redness had practically disappeared. Although the cornea was hazy, the punctate keratitis was much less in amount.

On June 3rd, the patient was discharged from the hospital. The eye was white, and the cornea hazy; there were no nodules, and the punctate keratitis had practically gone. The patient, after leaving the hospital, was not seen again by us.

Case II.—B. F., female, *æt.* 17. Domestic servant. Admitted into the Central London Ophthalmic Hospital on August 4th, 1906.

The patient was a girl of the dark, tuberculous type. There

was a suspicion of dulness at the right apex, but no other tuberculous lesion could be found; no specific history could be obtained. She was suffering from iritis with posterior synechiæ in both eyes—the right being more severe. On the lower part of the right iris there was a well-marked nodule. In both eyes there was interstitial opacity in the cornea, together with extensive punctate keratitis. Both eyes had been bad for six weeks previous to her attending the hospital.

On August 4th, her opsonic index for tubercle bacilli was found to be 1·0. On August 8th, $\frac{1}{1000}$th m.g. of tuberculin T.R. was given and repeated on August 19th.

On August 28th, both pupils had dilated, and the nodule on the lower part of the right iris had disappeared.

On September 7th, her opsonic index had risen to 2·0. After each injection, she had had a local reaction. Injections of tuberculin of $\frac{1}{500}$th m.g. were given weekly.

On October 4th, both pupils were dilated; there was no ciliary injection; the interstital keratitis had cleared up considerably, and there was no keratitis punctata.

In December, the opsonic index had dropped to 1·0; the ciliary injection had reappeared, and the keratitis punctata had returned to the right eye to some extent. The injections were repeated every two weeks.

On March 29th, 1907, the punctate keratitis had practically disappeared, the eyes were both quiet, the pupils were dilated, the fundi normal, and the opsonic index for tubercle bacilli was 1.0.

Case III.—E. O., female, *æt.* 27, admitted into the Central London Ophthalmic Hospital on December 30th, 1905.

The patient was a thin, anæmic woman, married, and had one child which died at birth. No history of consumption in the family and no other tuberculous lesion could be found. There was no specific history. The patient's sight had been gradually failing for seven months. There were multiple, large nodules on both irides—three on the right and four on the left—and the back of the cornea was covered with "mutton fat" punctate deposits.

On January 1st, 1906, the opsonic index for tubercle bacilli was found to be 1·14, and $\frac{1}{1000}$th m.g. of tuberculin was given. No local reaction was noted.

On January 29th, an inoculation of $\frac{1}{1000}$th m.g. of tuberculin was repeated.

On February 7th, the opsonic index had dropped to ·75 (negative phase). There was a marked local reaction after the last injection of the tuberculin.

On February 8th, another $\frac{1}{500}$th m.g. of tuberculin was given,

and on February 27th the opsonic index was 1·7. There was local reaction after this, and each of the following injections.

On March 8th, the nodules had practically all disappeared from the irides.

On April 4th, the opsonic index was 2·1, and another $\frac{1}{1000}$th m.g. of tuberculin was given.

On May 5th, there was a slight relapse.

The patient volunteered the statement that for forty-eight hours after inoculation the sight got slightly worse, and then began to clear. The improvement of sight continued for about ten days, and then became more misty.

Weekly injections of $\frac{1}{500}$th m.g. were continued up to November 1st, 1906. At that time the left eye had practically settled down, although some slight amount of punctate keratitis was present, as well as marked interstitial opacities in the cornea. In the right there were multiple posterior synechiæ, interstitial opacities in the cornea, and still a considerable amount of punctate keratitis, but no nodules were present.

The tuberculin was continued weekly, and on March 29th, 1907, there were no nodules present on the iris, the punctate keratitis had gone from both eyes, and the opacities in the cornea had cleared very considerably. The opsonic index was 1·2. In the left eye there was a tendency to local iris *bombé*, and the tension of the eye was full.

Case IV.—A. G., female, *æt.* 42. Attended the Central London Ophthalmic Hospital on January 17th, 1906. Previous to this she had attended Moorfields Hospital for 18 months.

She was a thin, anæmic woman. No other tuberculous lesion could be found. Married 15 years. No children; no miscarriages; no specific history. Two sisters had died of phthisis. Right eye vision was 6/6 and the fundus normal. In the left eye vision was bare perception of light. T + 1. There were three large nodules in the periphery of the iris, with the remains of a fourth. Well-marked interstitial infiltration of the cornea and punctate keratitis; the iris was discoloured and a quantity of lymph existed on the lens capsule; the iris was locally *bombé*.

On January 28th, 1906, the opsonic index was ·96, and $\frac{1}{1000}$th m.g. of tuberculin was administered, which was followed by a marked local reaction.

On February 7th, the opsonic index was ·90, and on the 8th another $\frac{1}{1000}$th m.g. of tuberculin was given, which was also followed by a local reaction.

On February 26th, the opsonic index was 1·8. The injection was repeated.

On February 29th, the ciliary injection was less; the nodules

on the iris had disappeared. The steady improvement in the eye continued, and on March 8th and 28th further injections were given.

On April 4th, the opsonic index was 1·45; the general health had improved, together with the condition of the eye, although the interstitial infiltration and the punctate keratitis had not cleared.

On May 3rd, a corneal ulcer formed on the lower part of the cornea, an occurrence strongly suggestive of extra-ocular infection. This was treated in the ordinary way with a pad and bandage, but in spite of this, the eye continued to go down-hill from that time.

On May 11th, the opsonic index was ·9, the corneal condition was worse, and there was a well-marked new nodule down and in on the iris. At this time she was advised to have the eye excised, but refused to do so, and ceased attending the Hospital.

Case V.—A. G., female, *æt.* 17 years. Visited the Central London Ophthalmic Hospital on January 6th, 1904.

On admission, she was suffering from serous iritis of the right eye. The vision of each eye was 6/36 and the R.J. No. 16, L.J. No. 12. On January 13th, 1904, the same condition appeared in the left eye. No specific history. The patient has a cough but has never spat up any blood. There is no history of consumption in the family nor of joint trouble. The chest was examined and nothing abnormal found.

On March 2nd, 1904, a gelatinous nodule appeared at the margin of the iris, down and out in the left eye. There was a slight amount of ciliary injection. The iritis continued slowly to increase until June, 1905, and on June 27th, as many as three nodules were noted in the pupillary margin of the iris of the left eye. During this time the patient had been on antisyphilitic treatment.

In January, 1905, an iridectomy was performed in the right eye, for iris *bombé*, with increased tension.

On August 8th, 1905, the patient's opsonic index for tubercle bacilli was taken and found to be ·5 and $\frac{1}{750}$th m.g. tuberculin T.R. was given.

On August 29th, the opsonic index had risen to 1·0, and another $\frac{1}{1000}$th m.g. of tuberculin was given. The condition at this time showed considerable improvement; the ciliary injection was less, and two of the nodules had disappeared.

On September 1st, the opsonic index was 1·25, and the injection repeated.

On October 25th, one small nodule remained, but the patient developed an iris *bombé* with tension in the left eye, for which an

iridectomy was performed. The eye settled down readily after the operation, the nodule disappearing from that iris, but there was still some slight amount of punctate keratitis.

On November 24th, the opsonic index was 1·99, and another dose of $\frac{1}{750}$th of tuberculin was given.

On November 31st, the opsonic index was 1·25, and $\frac{1}{500}$th of tuberculin administered. Well-marked reaction had followed the last three injections and continued to do so after all subsequent inoculations.

On January 23rd, 1906, the opsonic index was 1·99, and $\frac{1}{500}$th of tuberculin was given.

On February 13th, 1906, injection repeated.

On February 27th, the opsonic index was 1·7.

During March, April, May, and June, the injections were given, the opsonic index remaining about 1·9.

At the present time:—*Left eye.* Iris bright. No nodules; no punctate keratitis; no vitreous opacities; fundus normal. V. $\frac{6}{12}$, c correction. Eye quiet. *Right eye.* Iris bright; no vitreous opacities; no nodules; no ciliary injection, but punctate keratitis is still present.

Remarks.

Dose and Frequency of Injection.—The first injection should be small and not more than $\frac{1}{1000}$th m.g. should be given, owing to the negative phase, which usually lasts about two weeks. During the first week the ocular condition tends to become worse, and in this case it is most important that the opsonic index should be carefully watched, as the local reaction is often absent during the first one or two injections. After the index has begun to rise the injections may be safely repeated and the dose increased by watching the local condition, as judged by the amount of reaction produced and the length of time the improvement is maintained. Thus increasing the dose produces more reaction. The reaction corresponds to the negative phase, and shows itself at the end of 48 hours by increased ciliary injection, haze of the cornea, and increase in the punctate keratitis. It usually lasts from two to three days, after which time the improvement commences and continues up to, usually, about the tenth day, when the index is at its highest. It is, therefore, advisable to repeat the injection about the eighth day, since the negative phase is not nearly so marked if tuberculin is given whilst the index is on the rise.

The Results of Treatment.—The most important factor, as regards the final results, seems to be the time at which patients come under treatment, as shown by the following table:—

Nature of Case.	Date of attendance after onset.	Nodules gone.	Discharged.
Conglomerate.			
Case I. ...	From beginning ...	4 weeks	6 months
Case II. ...	6 weeks (both eyes)	3 weeks	8 months
Case III. ...	7 months (both eyes)	3 months... ...	18 months
Case IV. ...	2 years	4 weeks, but re-appeared	Eye disorganised
Miliary.			
Case V. ...	20 months	3 months... ...	18 months

As will be seen from the above table, the treatment is much less prolonged in the early cases. In all, the nodules disappear quickly. In the late cases, although the ciliary injection subsides and the corneal haze improves, a low-grade cyclitis still persists, as evidenced by the presence of punctate keratitis. On the whole, we think that the results obtained by tuberculin are probably considerably better than those obtained by other methods of treatment, but at the same time the improvement is relatively slow.

Tuberculous Scleritis.

This disease is comparatively rare, judging from the scarcity of literature on the subject, but from our experience it seems probable that many cases of so-called episcleritis are really of tuberculous nature, although often not recognised as such. We have found the microscope most useful in making the diagnosis in all our cases, and the excision of portions of the nodules beneficial as regards their treatment. The latter is easily performed under adrenalin and cocaine when a nodule is at all recent.

Case I.—J. B., male, *æt.* 12 years. Admitted into the Central London Ophthalmic Hospital on April 7th, 1906.

The notes and an illustration of this case were published in the *Transactions* of the Ophthalmological Society, in 1906 (Vol. XXVI, p. 33) by one of us (W. I. H.). The patient was a sallow, auburn-haired boy, with enlarged glands in the neck. There was a large warty growth situated immediately below, but not involving, the cornea of the right eye. It was found on operation that the mass had pene-

trated the whole thickness of the sclera, the ciliary body being seen after its removal. On section, it showed typical giant-cell systems with caseating areas, and tubercle bacilli were found in small numbers. The pupils were dilated, and the fundi found to be normal. There was no vitreous trouble. The opsonic index for tubercle bacilli was ·5. Tuberculin ($\frac{1}{500}$th m.g.) was given. The wound healed readily, the patient was discharged from the hospital, and remains well at the present time. The scar is firm, although the pigment of the ciliary body can still be seen in it.

Case II.—C. B., male, *æt.* 12 years. Admitted into the Central London Ophthalmic Hospital on May 10th, 1906.

The patient was a strong, healthy boy. No other tuberculous lesion was found. There was a swelling, situated above the right cornea, which had been noticed one week, but since it was situated under the upper lid, it may have escaped observation for some time. The mass was raised, with ill-defined edges, shading off into the surrounding tissue. In the neighbourhood the superficial and deep vessels were dilated. The cornea opposite the nodule was opaque, and was invaded by the mass at the limbus. The pupil dilated easily under atropine. The vision was 6/6, and the fundus normal. There were no vitreous opacities.

On August 31st, a piece was removed for microscopic examination, and the base cauterised. The microscopic examination was strongly suggestive of tubercle, caseation being found in it, although no tubercle bacilli could be discovered. The opsonic index for tubercle bacilli was 1·0.

On November 2nd, $\frac{1}{1000}$th m.g. of tuberculin was given. The wound healed readily and cicatrised. The corneal opacity slowly disappeared. At the present time there is only a small nebula remaining in the upper part of the cornea.

Case III.—C. E., male, *æt.* 12 years. Admitted into Central London Ophthalmic Hospital, September 29th, 1906.

Strong healthy boy. No history of syphilis or tubercle. No other tuberculous lesion found, except that there was a suspicion of consolidation in the left lobe of the lung behind. Two years previous to admission, the patient had a swelling in the left eye, for which he was treated at the Shadwell Hospital for six weeks. In the right eye, there were two distinct nodules in the sclera on the inner side. In the left eye, a large nodule in the sclera on the outer side. The corneæ were not involved. Vision was 6/18; fundi normal; vitreous clear. There was a certain amount of photophobia and some pain. On October 17th, a nodule was excised from the right eye, and showed a round-celled infiltration with caseation, but no tubercle bacilli were

found. The opsonic index was ·93 and $\frac{1}{500}$th m.g. of tuberculin was given, and repeated on November 3rd. Subsequently, the nodules rapidly disappeared, and he was discharged on November 14th, the eyes quite quiet, the nodules having entirely disappeared, although the opsonic index had not risen above ·4; that is, the patient had not entirely recovered from the negative phase.

The patient remained well until March 15th, 1907, when a fresh yellow nodule appeared on the outer side of the right eye, which subsequently invaded the cornea to a slight extent. At this date the opsonic index was ·5. The nodules again cleared up after four injections each of $\frac{1}{500}$th m.g. of tuberculin, and the patient is well at the present date.

Case IV.—A. S., female, *æt.* 26. Admitted into the Central London Ophthalmic Hospital on October 24th, 1906, with a very large nodule, with numerous yellowish caseating areas, situated in the sclera of the left eye, close to the limbus. It was diffused one-third round the cornea, but did not involve the latter. The conjunctiva was intact over the surface. The vision and fundi were normal, and there was no vitreous trouble. The patient was placed on antisyphilitic treatment for six weeks without improvement.

On January 4th, 1907, the opsonic index for tubercle bacilli was 1·0. A piece of the scleral nodule was removed for microscopic examination, and found to consist of typical tuberculous material (giant cells, epithelioid cells, etc.), but no tubercle bacilli were found. $\frac{1}{500}$th m.g. of tuberculin was given and repeated in two weeks.

On March 29th, the large nodule had disappeared, but a small nodule had re-formed below, which was subsequently partially removed. The opsonic index at this time was ·69. Weekly injections of tuberculin ($\frac{1}{500}$th m.g.) were given. A further nodule again appeared below, but after three more injections, each of $\frac{1}{500}$th of tuberculin, at intervals of ten days, the nodules had disappeared, and there was only slight injection when last seen, the opsonic index being 1·0.

Conclusion.—Unlike the cases of tubercle in the iris the local reaction is insufficient to judge of the condition of the patient without the opsonic index. But, fortunately, few injections of tuberculin are required to cause the nodules to disappear in the first instance, but if recurrence takes place, the nodules seem to take considerably longer to go under the influence of tuberculin.

The cases of ocular tuberculosis above recorded are too few in number, and the time they have remained under observation is too limited to justify our drawing dogmatic conclusions.

The T.R. treatment, when controlled by the opsonic index,

is one which is entirely free from danger to the patient; and we believe, that when given an extended trial, it will prove a distinct advance in the treatment of this intractable disease. Probably, if the injections could have been combined with the open-air treatment, the results would have proved still more encouraging.

We are indebted to our colleagues who have kindly referred some of the above cases to us for treatment.

ON ATOXYL IN OCULAR SYPHILIS.

BY

Dr. A. DARIER

OF

PARIS, FRANCE.

On April 1st, 1907, I was consulted by a patient on account of acute iritis of three or four days' duration. Syphilis was absolutely denied. Atropine, hot compresses, and aspirin were prescribed. On April 4th two condylomata were present in the upper part of the iris of the right eye. A diagnosis of syphilitic iritis was then made, not only on account of the condylomata of the iris but also because the sub-occipital glands were enlarged and a number of small squamous papules were found to be scattered over the patient's body and forearms. Dr. Salmon, of the Institut Pasteur, who has experimented with atoxyl,* agreed as to the syphilitic character of the diseased process. He discovered, indeed, a slightly pigmented cicatrix, free from induration, on the patient's prepuce. On April 10th the condylomata were larger than before, and were complicated with punctate keratitis. The sight of the affected (right) eye, corrected with a —3 D. lens, was $\frac{1}{6}$. 5 cc. of a 10 per cent. solution of atoxyl was injected deeply into the gluteus maximus. On April 12th the injection of 0·80 of atoxyl set up nausea and violent colic. The dose was accordingly reduced, and on the 15th, 17th, 19th, 20th, and 24th April, 0·30 of atoxyl was injected into the veins. Briefly, in the course of 14 days, the patient had been given seven injections containing in all 2 grammes 80 of atoxyl. The eye symptoms manifested rapid improvement. Thus on April 24th the condylomata had disappeared from the iris, although some deposits were still visible on Descemet's membrane, and vision was one-half normal. When the man was examined on May 3rd the pupil

* According to Martindale and Westcott's *Extra-Pharmacopœia* (twelfth edition, 1906, p. 151), atoxyl is an organic compound, which contains 37·67 per cent. of arsenic. It is soluble in about 1 in 6 of water. It is relatively non-toxic. Martindale prepares "sterules"—*i.e.*, small glass phials—containing $\frac{1}{2}$ grain atoxyl dissolved in 17 minims of water, for hypodermic injection.—EDITORS.

was found to be mobile, the vision normal, and but few deposits remained on Descemet's membrane.

In the case to be next related, the action of atoxyl was not so clear. The facts are as follows:—a patient, 72 years of age, who denied syphilis, had been treated for a month for so-called "rheumatic iritis" before he came under my care on January 20th. His vision was then equal only to counting fingers at a distance of a few *centimètres*. The vitreous contained numerous floating bodies, so that no satisfactory view of the fundus could be obtained with the ophthalmoscope. Each cornea showed small, deeply-seated opacities, and in the left anterior chamber hypopyon was present. On enquiry from the patient's usual medical attendant, a history of syphilis was obtained.

Despite twenty intravenous injections, each of 0·07 of mercury salicylarsinate, assisted in their action by the diaphoresis induced by sodium salicylate and pilocarpine, iritis and hypopyon were present in the patient's right eye on March 6th. I then tried, without success, intravenous injections of collargol (0·05) for five consecutive days. On March 12th it was decided to employ massive doses of mercury. Accordingly, 0·15 of mercury salicylarsinate was given by the veins, and 0·0001 to 0·002 by the conjunctiva (two injections a week for each eye). On March 27th, there was a fresh outbreak of iritis with hypopyon. On April 10th, after twenty-seven intravenous injections and about ten subconjunctival injections, the vision of the right eye was 1/30, and that of the left eye fingers at some *centimètres*. On that date, an intra-muscular injection was made of 0·50 of atoxyl. Two days later, the dose was increased to 0·80, which set up during the same night nausea and abdominal discomfort. Next day I contented myself with a subconjunctival injection of atoxyl, 0·005. On the 15th, the intra-muscular injection of 0·50 of atoxyl was followed by renewed abdominal discomfort. I therefore returned to the intravenous injections of mercury, continuing at the same time subconjunctival injections of 0·005 of atoxyl, which produce less discomfort, by the way, than injections of enesol.

In short, after seven subconjunctival and three intra-muscular injections of atoxyl (in all, 2 grammes 35), to say nothing of intravenous injections of mercury, the condition of the eyes had changed considerably for the better. The corneæ were transparent; the pupils were well dilated; and the hypopyon had disappeared. The vitreous opacities had so far been resorbed that each optic disc could be examined with the ophthalmoscope, and papillitis was found to be present. R.V. = ¼, and L V. = 1/10. The visual fields resembled those found in cases of retinitis pigmentosa.

On May 10th, the patient left Paris for the country, and I recommended him to have a calomel injection once every week.

Remarks.—Dr. P. Salmon, who treated the most varied manifestations of syphilis by means of atoxyl, made important communications on the subject to the *Société de Biologie* on March 16th and April 13th last. We may epitomize his work briefly.

Salmon treated a certain number of syphilitic patients by means of arsenic alone with encouraging results. The tendency towards recovery was already visible three days after a single injection of 0 gramme 50 of atoxyl. Cure was complete in two weeks. In other words, arsenic acted as rapidly as mercury in the cases. Atoxyl presents an advantage over mercury and potassium iodide in that it is non-toxic, both when applied locally and administered internally. Among the patients he treated he has observed no intolerance, even when 3 grammes of atoxyl had been administered in the course of a single week. Locally, the injection of atoxyl has provoked neither pain, nor induration, nor abscess—in a word, none of the reactions set up by the causticity of the salts of mercury as regards the human tissues.

It is obvious, therefore, that the treatment of syphilis by arsenic possesses considerable interest from the practical point of view. Salmon has treated by those means 27 patients suffering from syphilis.

The action of atoxyl is shown by:—1, the constancy of its results; 2, the rapidity of its action; and 3, the quickness of cicatrisation of the lesions.

1. *The constancy of its results.*—The favourable action of atoxyl manifests itself in all periods of the evolution of syphilis—primary, secondary, or tertiary. It has been manifested in the following lesions: phagedenic chancres, roseola, papules, mucous patches, gummata, and tertiary glossitis. The alteration of these various lesions for the better is appreciable to the naked eye.

2. *The rapidity of its action.*—Arsenic is absorbed quickly and acts quickly. In two cases, the headache marking the onset of the secondary stage ceased 18 hours after the injection of atoxyl. In five patients cutaneous papules yielded and changed in colour towards the third day. Ulcers and gummata improved visibly from day to day. Dysphagia and syphilitic angina showed improvement in two or three days.

3. *The rapidity of cicatrisation of the lesions.*—The following figures are suggestive:—a chancre of 12 days' duration cicatrised in six days when treated by the injection of 2 grammes 50 of atoxyl. Generalised papules disappeared in 14 days after the injection of 4 grammes 20 of atoxyl. Papules vanished in 14 days after 3 grammes 10 of atoxyl. A mucous patch of the lip,

measuring 13 mm. in width, was cured in 11 days by 4 grammes 80 of atoxyl. Another mucous patch on the lip, measuring 30 mm., cicatrised in 19 days after the injection of 6 grammes 30 of atoxyl. A palmar psoriasis was cured in 12 days after the use of 3 grammes 41 of atoxyl. Erosive glossitis improved in seven days after 3 grammes of atoxyl had been injected. A tertiary ulceration of 3 centimètres in breadth was reduced to a few millimètres after 12 days' treatment with atoxyl (2 grammes 90). A gummatous osteoperiostitis of the fibula was cured in less than three weeks by the use of 3 grammes 80 of atoxyl.

One may conclude from these facts that atoxyl acts upon syphilitic processes at least as quickly as does mercury, which up to now has been looked upon practically as the only specific for the disease in question.

Salmon employed atoxyl in doses varying from 50 centigrammes (7·715 grains) to 1 gramme (15·43 grains). Speaking generally, patients complain of no discomfort with repeated injections of 75 centigrammes or 1 gramme. We have employed without accident more than one hundred doses of more than 50 centigrammes. Atoxyl is little toxic. Thus, a syphilitic subject received, without inconvenience, 6 grammes 30 in the course of a month, while a woman affected with albuminuria and the cancerous cachexia supported perfectly 2 grammes 90 of atoxyl. In fact, Salmon observed intolerance only in a debilitated syphilitic, depressed by a chronic stomatitis, due to the administration of mercury.

In everyday work, atoxyl may be administered in doses of 50 centigrammes (7·715 grains) repeated every other day for two or three weeks in solutions of 10 per cent. to 15 per cent.

At a meeting of the Berlin Ophthalmological Society, held on May 16th, 1907, Hoffmann presented three cases of grave ulcerous syphilides treated by means of atoxyl (*Woch. f. Ther. u. Hygiene des Auges*, No. 35). In all some 4 grammes of atoxyl had been administered in injections every other day of 0 gramme 50 of the remedy. Locally, Hoffmann had applied a 10 per cent. solution of the agent. The lesions cicatrised rapidly, but not more rapidly than would probably have been the case under mercurial treatment. Hoffmann concluded that atoxyl might render service in cases where mercury was contraindicated. He had treated in all eleven cases, and considered that atoxyl was most successful in recent syphilis. In four of the patients Hoffmann had observed nausea, gastric disturbance, vomiting, vertigo, and diarrhœa. One of his patients developed albuminuria after four injections, each of 50 centigrammes of atoxyl. The albuminuria disappeared when treatment was discontinued, but reappeared later.

v. Michel has reminded us that prolonged medication with large doses of atoxyl has provoked lesions of the optic nerve, accompanied by a central scotoma.

Hallopeau (*Academie de Medecine*, January 4th, 1907), has treated quite a considerable number of cases of syphilis of all grades by means of atoxyl. The conclusions of this important communication are given below. They go to show that to-day we possess a third specific in the shape of atoxyl against the redoubtable ravages of syphilis.

The happy results obtained from atoxyl in sleeping sickness due to the trypanosome, led some to think that the same remedy might exert an identical action against the spirochæta or treponema pallidum, which has analogies of structure with the trypanosome. Lassar, of Berlin, was the first to try the effect of atoxyl in syphilis, but the doses he employed (0.20) were too small to obtain any satisfactory result. Salmon, recognising that the treponema pallidum is much more resistent than the trypanosome, administered stronger doses of atoxyl, 0.50 to 1 gramme every day. By these means he obtained the remarkable results which have already been related.

Hallopeau, during the course of five weeks, treated no fewer than 72 patients with atoxyl, in doses ranging from 0·75 to 0·50 every other day. He noted the following facts :—

Therapeutic action.—The results of the treatment fully confirmed those obtained by Salmon. The action of the remedy was especially striking in roseola, papular syphilides, and tertiary ulcerations. Secondary syphilides were sometimes more rebellious, as was also leucoplasia of the tongue.

Lassar, in a new series of cases treated with 0·50 of atoxyl every two days, had 25 patients whose condition was improved, with the exception of one case of iritis. These figures, when combined with those of Salmon (27), Lassar (25), Hallopeau (72), Hoffman (11), Balzer (10), and Darier (2), make the respectable total of 145 cases almost all of which were successfully treated with atoxyl.

Phenomena of intolerance.—Our two cases, when 0·80 of atoxyl was injected, showed symptoms of intolerance, as abdominal pains, nausea, and even vomiting. Hallopeau has also met with the same complications, as well as strangury, coldness of the extremities, and erythematous eruptions. Opium, mercury, digitalis, chloroform, and cocaine have also their toxic effects. The product must be freshly prepared, and it is known that atoxyl of German manufacture is much more toxic than that prepared in France.* The dose must be proportional to the weight, the strength, and the age of the patient. With atoxyl, as with other agents, idiosyncrasy must

be looked for. Treatment should not be unduly prolonged. It must not be forgotten that in a case where 27 grammes of atoxyl had been injected retro-ocular neuritis followed.

Accumulation of the product in the system.—An initial dose of 1 gramme or even of 1 gramme 50 is well borne under ordinary circumstances. It is rather after several injections that the phenomena of intolerance may manifest themselves. An examination of the urine will show the moment when all arsenic has been eliminated from the system.

Duration of the injections.—It is best to make a first series of six injections, each of 0.50 of atoxyl. The first three should be practised every other day, and the others every three or four days. A new series of injections should be undertaken after an interval of two or three weeks. Open questions are those concerned with the tolerance of the arsenic.

Should treatment by arsenic be exclusive?—In my opinion, treatment by arsenic, mercury, and iodine should alternate with one another. We cannot be armed with too many weapons against the attacks of an enemy so redoubtable as the treponema pallidum.

THE USES AND LIMITATIONS OF ARGYROL IN OPHTHALMIC PRACTICE.†

BY

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On being asked to read a paper this afternoon, it occurred to me that the opinions we have formed of the value of argyrol might be of some interest to the members of the Association.

Let me say at the outset that the conclusions we have arrived at are based, not on bacteriological investigation, but on an extensive clinical experience during the past three years.

*According to the German makers, atoxyl is the anilide of meta-arsenic acid. and contains 37·69 per cent. of arsenic. Fourneau, the discoverer of stovaine. however, believes that there is nothing new about the product except the name. It was discovered in 1863 by Béchamp, who obtained it by heating anilide arseniate. It contains, according to Fourneau, only 29 per cent. of arsenic, a fact which explains the relative non-toxicity of the French product.—A.D.

†A paper read before the Forfarshire Medical Association on April 5th, 1907, and reprinted from the *Surgical Medical and Surgical Journal*, May, 1907.

Judged from the bacteriological standpoint, argyrol would seem to rank inferior to nitrate of silver as a germicide, and to be of little real value as a substitute for this time-honoured preparation. Be that as it may, those who have given argyrol an extensive clinical trial, and who are thereby able to judge of its therapeutic value, are enthusiastic in its praise.

In a paper such as this it is unnecessary to enter fully into the chemical and physical properties of the drug. Suffice it to say that it is a synthetic preparation containing about 30 per cent. of metallic silver in combination with a proteid derived from wheat. It is very soluble in water, but incompatible with cocaine hydrochloride and other alkaloids. We have used it chiefly in 10 and 25 per cent. aqueous solution, and have found that its instillation into the eye is not only painless, but is followed by a feeling of comfort and relief. When the solution is kept for some time, and especially in the light, it decomposes, and is then liable to cause irritation. It should therefore always be freshly prepared, and kept in the dark or in non-actinic bottles.

The chief objection to the use of this drug from the patient's standpoint is that it stains the skin and handkerchief a deep chocolate-brown colour. This objection, however, is trifling, for the skin stains can be readily washed away with water, while linen stains are instantly removed by dipping the fabric in 1 in 1,000 perchloride of mercury solution. We have not had a single case of argyrosis—permanent staining of the conjunctiva—with argyrol. One complaint one frequently hears is that the drops pass down the tear duct into the nose and pharynx, and may alarm the patient, unless previously cautioned, owing to their brown colour and metallic taste. This objection is really a merit, as will be seen when we come to discuss the treatment of lacrymal affections.

The great advantage argyrol possesses over nitrate of silver lies in the fact that its application is painless, even in strong solution, and that it can be used freely and frequently by the patient without any risk. Nitrate of silver is, as you are aware, a dangerous remedy, except in the hands of the surgeon, and its application, even in 2 per cent. solution, is attended with such excruciating pain as to make the strongest shudder. The newer salts of silver, especially protargol and argyrol, were introduced into ophthalmic practice to obviate the dangers and discomforts of nitrate of silver. Protargol was said to be as efficacious as nitrate of silver, and to be non-irritating. As to its efficacy there can be little doubt, but to say that it is non-irritating is a perversion of the truth, as some of you here can testify from personal experience.

It is now my intention to discuss categorically the various

ophthalmic affections in which we have used argyrol, and to contrast the results we have obtained with those got with the older remedies.

Ophthalmia Neonatorum.—In regard to the prophylactic treatment of this important disease we have had no experience, for the cases are brought to us after the disease is well-established. When the child is seen for the first time a careful inspection is made, especially of the cornea, and the condition of the parts carefully noted in the case-sheet. The gravity of the disease is explained to the nurse or mother, and the importance of rigidly carrying out the directions as to treatment, etc., emphasised. A practical demonstration should, if possible, be given as to how the discharge is to be removed and the treatment applied. The discharge must be carefully and completely removed with tepid normal saline solution, and this is best accomplished by using a specially constructed douche, made with a large Florence flask, rubber stopper, and two glass tubes bent and shaped to form a nozzle and ventilating tube. But if this or any other suitable douche be not available, a good running teapot can be commandeered, and will be found quite useful. The child is laid on its back, and the head held so that the chin is higher than the forehead, to allow the fluid to pass freely into the upper conjunctival *cul-de-sac.* The eyelids are then gently separated with the finger and thumb, care being taken that the nails are cut short, to prevent scratching the cornea. After the discharge has been completely removed by the free use of the douche and saline solution, some half dozen drops of a 25 per cent. argyrol solution are instilled into the eye, the chin meanwhile being held higher than the forehead. This is again repeated every hour during the day, and the margins of the lids are kept smeared with vaseline during the night. If the discharge be copious, the saline douching is repeated every half-hour or so. This method of treatment has given us admirable results, for all our cases have done well, and corneal ulceration has not been seen since we systematically adopted it three years ago. If the treatment just described be properly carried out, the discharge will be found to become speedily diminished, and recovery will be more rapid than if the lids be everted, their conjunctival surface brushed daily with a 2 per cent. solution of nitrate of silver, and mild antiseptic douchings employed at frequent intervals. In applying the argyrol solution it is not necessary to evert the lids, as in the case of nitrate of silver. This proceeding in the hands of the unskilled is a source of grave danger to the cornea. With argyrol all that has to be done is to remove the discharge thoroughly with the saline douche, then instil some half-dozen drops of the solution into the eye.

Gonorrhœal Conjunctivitis.—In our experience this is a rare disease in the neighbourhood of Dundee. No doubt one occasionally finds a mild form of conjunctivitis along with a urethral discharge, but that cannot be classed as a case of gonorrhœal conjunctivitis. We have only seen two genuine cases during the past three years, and in these the treatment just described for ophthalmia neonatorum, with the addition of the continuous use of iced compresses, was found to be most satisfactory. The discharge soon became diminished in quantity, and recovery was more rapid than when nitrate of silver, iced compresses, and antiseptic douchings were employed.

Simple Catarrhal Conjunctivitis.—During the acute stage and in the milder types there is no remedy that we have tried to compare with frequent instillations of a 10 per cent. argyrol solution. In the severer types, 25 per cent. solution should be employed, especially in those cases that are on the borderland of purulent conjunctivitis. The discomfort experienced in these cases is relieved instantly after the instillation, the discharge becomes rapidly checked, and recovery is obtained, as a rule, without the least discomfort to the patient. The treatment should be applied every two or three hours, or oftener, if the discharge is plentiful. If the affection does not go on to complete recovery, as sometimes happens, but passes into the subacute, or chronic, stage, where there is little or no discharge, argyrol is useless, and its place should at once be taken with any of the older collyria. It is during the catarrhal, or purulent, stage of conjunctival affections that argyrol is so successful; once the discharge has ceased, its usefulness has largely disappeared. Unlike nitrate of silver, argyrol is not precipitated by the sodium chloride of the tears, so that simple instillation is all that is necessary, provided the patient holds the chin higher than the forehead, to enable the fluid to find its way into the upper *cul-de-sac* by gravitation. The head should be held in this position for a full minute or so after the instillation, during which time the patient should wink freely, to allow the solution to become diffused over the whole conjunctival surface. When the patient sits up it is a good plan to get him to blow the nose freely, so as to flush out the tear ducts.

Chronic Conjunctivitis.—When this form of conjunctivitis is attended with discharge, argyrol solution is useful only in checking the discharge and preparing the eye, so to speak, for more suitable treatment. If there be little or no accompanying discharge, argyrol is practically useless. When the condition is associated with hypertrophy of the palpebral conjunctiva and eversion of the eyelids, 2 per cent. nitrate of silver solution, applied daily by the surgeon with a camel's hair brush to the everted eyelid, is by far the best non-operative treatment.

Corneal Ulceration.—In simple corneal ulcers argyrol and atropine drops are very useful, in 10 and ½ per cent. solutions respectively, instilled three times a day, the atropine drops being applied half-an-hour or so after the argyrol. In catarrhal ulcers this treatment is also very satisfactory, but in sloughing ulcers of the cornea, with hypopyon, it is thoroughly disappointing, even although freely and frequently applied in 25 per cent. solution. When the condition is due to pneumococcal infection, it is also a failure, and no time should be lost in applying the cautery. In phlyctenular keratitis, with or without vascularisation, argyrol solution is of no use; yellow oxide of mercury ointment, with cocaine and atropine, is certainly the best treatment we know of.

We have found argyrol of very little use also in follicular, granular, and diplobacillary conjunctivitis, except as an adjuvant in checking the discharge.

Tear Duct Affections.—In simple epiphora, due to inflammatory swelling of the lacrymal passages, argyrol is most beneficial. We treat these cases with instillations of a 10 per cent. solution, teaching the patient to press over the lacrymal sac with the finger while the head is held well back and turned slightly to the opposite side, the idea being to get the fluid into the sac and down the nose on the principle of the filling and emptying of a ball syringe. Should this fail after a fortnight or three weeks' trial, we pass a No. 2 Bowman's probe down the duct into the nose without dividing the canaliculus. The probe must be passed with the greatest care, so as to avoid injuring the lining membrane of the duct. The instillations of argyrol, etc., are continued three times a day for a few weeks. Improvement will be found on the second or third day if the treatment is to be successful. We have tried this method of treatment in this troublesome affection for nearly three years with very gratifying results. In chronic dacryocystitis, or mucocele, after dividing the lower canaliculus and passing the largest Bowman's probe, the patient is instructed to empty the sac by pressing over it with the finger, and to instil a 25 per cent. solution of argyrol solution over the inner canthus, the same manipulations for getting the solution down into the nose, as described in the management of simple epiphora, being adopted. Under this treatment the discharge from the sac soon becomes arrested, and fewer probings are necessary. The same treatment is adopted in dealing with tear duct obstruction where a style is employed. The use of an Anel's syringe, with argyrol solution, in the treatment of lacrymal affections may be attended with unpleasant consequences. It sometimes happens, especially with a restless patient, that the mucous membrane of the duct becomes abraded.

when the fluid may pass into the subcutaneous tissue, and leave a slight permanent staining of the eyelids.

Preparation for Operative Interference on the Eye.—In preparing the eye for operative interference, such as for cataract extraction, when there is evidence of discharge, as shown by staining of the attesting dressing, or by obscuration of the ophthalmometer mires by mucus, we have used argyrol solution, in the strength of 25 per cent. solution, to diminish the activity of the conjunctival flora. The results obtained are thoroughly satisfactory, for we have not seen a case of suppuration following operation since this method of treatment has been adopted some three years ago.

Blepharitis.—The treatment of simple or squamous blepharitis by argyrol is, in our experience, inferior to that with yellow oxide of mercury ointment. In ulcerative blepharitis the best results we have had have been with nitrate of silver in 2 per cent. solution, applied to the margin of the eyelid after the crusts have been carefully removed with a weak tepid solution of baking soda. The nitrate should be applied daily till the ulcerative condition has healed up, when the treatment with simple yellow oxide of mercury ointment, applied three times a day, should be adopted. The ointment should be continued for a few weeks after the lids appear well, to prevent a relapse, and any refractive error should at the outset be corrected and suitable glasses be worn constantly.

Miscellaneous.—During the past few months we had three most typical cases of dendritic corneal ulcers under treatment about the same time in hospital. Each case, to begin with, was treated with 25 per cent. solution of argyrol every hour or two, but without the least beneficial result. On applying the galvano-cautery, however, recovery soon took place.

Conclusion.—In conclusion, we have no hesitation in saying that argyrol is one of the most valuable remedies at the disposal of the ophthalmic surgeon in the treatment of certain conjunctival and tear duct affections, for it is the only remedy we know of that can cure efficiently, without pain and discomfort to the patient, and without trouble or anxiety to the surgeon.

CURRENT LITERATURE.

NOTE.—Communications of which the titles only are given either contain nothing new or else do not lend themselves to abstract.

I.—THE CRYSTALLINE LENS.

(1) Beck, A.—On congenital anomalies in shape and position of the lens. (Zur Kenntniss angeborener Lage und Formveränderungen der Linse.) *Arch. f. Augenheilk.*, Dezember, 1906.

(2) Fischer, Ferd.—On fixing the shape of the lens by the freezing method. (Ueber Fixirung der Linsenform mittels der Gefriermethode.) *Arch. f. Augenheilk.*, Dezember, 1906.

(1) **Beck** first discusses ectopia associated with coloboma of the lens and then ectopia with microphakia. He finds that the first combination is not exactly a rare one, Kaempffer having noted 22 dislocations amongst 132 colobomas, and Toldt 15 amongst 95. The author describes a case in which both lenses, with a coloboma downwards, are dislocated upwards. The coloboma in the left eye was not bounded by the segment of a circle, but by two straight lines enclosing an obtuse angle. He proceeds to cite the opinions of various authorities regarding the ætiology of these conditions, alludes to a number of cases in which heredity was a notable factor, and to a series of others in which the condition of the zonula was observed. A second case is described in which ectopia of the lens was associated with microphakia. Tension was raised in both eyes. Iridectomy was performed in one of them and was followed in a few hours by hæmorrhage and escape of the vitreous and lens. The patient was 27 years old, and the lens measured only 6·5 mm.—7 mm. in diameter. The lens was quite clear.

PERCIVAL J. HAY.

(2) **Fischer** froze a series of birds' eyes with the object of ascertaining whether the method was a reliable one for studying changes in the shape of the lens. The eyes were frozen in a few seconds by means of liquid air. The myotics and mydriatics used were nicotin and strophanthin. With this method of rapid freezing scarcely any difference could be seen between the lens at rest and in accommodation. The results differ, therefore, from those of v. Pflugk. Deformities occurred so frequently that the author regards freezing methods as inadequate for studying changes in the shape of the lens, since such changes may be produced by the method itself. PERCIVAL J. HAY.

II.—THE LACRYMAL APPARATUS.

(1) Monesi, L.—Embryological observations upon the lacrymal passages, especially of the rabbit. *Annali di Ottalmologia*, XXXV, 1906, fasc. 10-11.

(2) Basso, D.—The part played by trachoma in the pathology of the lacrymal passages. *Annali di Ottalmologia*, XXXV, 1906, fasc. 7-9.

(3) Sommer, G.—On the psychic weeping of children in the first weeks of life. (Ueber das psychische Weinen der Kinder in den ersten Lebenswoche.) *Wochenschrift fur Therapie und Hygiene des Auges*, 30 August, 1906.

(4) Snyder, W. H.—My experience in treating diseases of the duct without operation. *Ophthalmology*, October, 1906.

(5) Laferrère.—Tears of blood. (Larmes de sang.) *L'Ophtalmologie Provinciale*, novembre, 1906.

(6) Collomb and Doret.—Traumatic dislocation of the orbital lacrymal gland. (La luxation traumatique de la glande lacrymale orbitaire.) *Annales d'oculistique*, novembre, 1906.

(7) Cabannes and Villemont.—Lacrymation and maxillary sinusitis. (Larmoiement et sinusite maxillaire.) *Ann. d'oculistique*, T. CXXXVI, p. 453, décembre, 1906.

(8) Fejér, Julius.—Congenital purulent affections of the lacrymal sac in new-born infants. (Ueber die angeborenen Thränensackeiterungen Neugeborener.) *Arch. f. Augenh.*, Februar, 1907.

(1) Born's theory with regard to the development of the lacrymal canaliculi is the one generally received. According to this view, one of the canaliculi originates by secondary budding from the naso-lacrymal lamella, while the other canaliculus is derived from the upper end of the same lamella. Monesi's researches in rabbits show that at a certain period of embryonic life, the epithelial cord which represents the naso-lacrymal lamella, divides posteriorly into two cords, which come into relationship with the ectoderm. Successively, the two epithelial cords become transformed into the two canaliculi. But while the lower keeps its relationship with the external ectoderm, the upper becomes separated from the latter, and thus comes to form

a small blind canal, of which the site is homologous to what occupies in other mammals that portion of the superior canaliculus which lies nearest to the naso-lacrymal canal.

A. ANTONELLI.

(2) **Basso**, who is a strong advocate of extirpation of the lacrymal sac in rebellious cases, has utilised the rich pathological material at his disposal for the carrying out of new researches. The latter prove that trachoma of the lacrymal passages is frequent, as a primary affection, associated with trachoma of the conjunctiva, or as a sequel to the last-named. Many chronic diseases of the lacrymal passages, believed up to now to be of a simple catarrhal nature, are in reality of trachomatous origin. Among the thirty-three cases described by the author, twenty presented alterations characteristic of the trachomatous process, sometimes throughout the length of the canal, and at other times limited to one part alone. The processes were inflammatory and follicular, now in active evolution, and again in cicatricial regression. Three other cases manifested signs of serious cicatricial change, but without follicles or granulomatous foci such as would prove the existence of trachoma. Lastly, ten specimens showed the alterations of chronic inflammation, but without deep cicatricial transformations, or follicles, or of other lesions permitting one to suspect the existence of trachoma. Of the twenty cases showing trachoma of the lacrymal canal, three presented at the same time classical trachoma of the conjunctiva, three the sequels of that affection, eight a simple inferior tarsal conjunctivitis (lacrymal conjunctivitis), or had been operated on for hypopyon-keratitis of lacrymal origin. The remaining six showed no manifest alteration in the conjunctiva. In fourteen instances out of twenty, therefore, trachoma was localised to the lacrymal canal, and might accordingly be regarded as a primary disease of that passage. Follicular lesions were found to predominate in the sac and cupola, while cicatricial lesions predominated in the canal itself. For further histological details described by the author and represented in the accompanying plates, the original communication must be consulted.

A. ANTONELLI.

(3) **Sommer** calls attention to the fact that new-born weaklings shed tears earlier than those who are more sturdy. The writer asks for the attention of his colleagues to the point.

ERNEST THOMSON.

(4) In these days of well-nigh universal excision of the lacrymal sac, it is refreshing to peruse the experiences of a man like **Snyder**, who has adopted, apparently with considerable success, the most conservative methods of treating diseases of the lacrymal passages. Briefly, while not altogether antago-

nistic to surgical measures, he advocates persistent syringing with weak lotions, as of boric acid, sodium chloride, borax, and trikresol. The sac once clean, Snyder first injects 3% cocaine and adrenalin, and follows this up at once with argyrol solution. The punctum is dilated with a fine point, but the canaliculus is not usually divided, and no attempt is made, as a rule, to pass any instrument down the naso-lacrymal duct. S. S.

(5) **Laferrère** records a case of blood-stained tears caused by hæmorrhage from a polypus of the tarsal conjunctiva.

(6) **Collomb** and **Doret's** patient, a boy, aged 5½ years, fell from a height of 3 metres on ground covered with pointed pieces of stone, causing a wound, 12-15 mm. long, 10 mm. below the right eyebrow through which the lacrymal gland prolapsed, and a second wound splitting the ciliary margin of the upper lid at right angles to its edge for a distance of 2 or 3 mm. chiefly on the conjunctival side and involving a large part of the tarsus. After careful cleansing, the gland was replaced, and sutures were inserted. An injection of anti-tetanic serum was given. Union by first intention took place. The authors consider that the wound of the palpebral margin was due to perforation from that below the eyebrow by a pointed process of the injuring body and not to an independent traumatism. They give a *résumé* of 18 recorded cases of prolapse of the lacrymal gland, which show that the lesion is always caused by a violent blow against a pointed body giving rise to a more or less extensive wound in the neighbourhood of the gland, and occurs most frequently in children (in 14 of the authors' cases the patients were under 6 years of age) probably owing to the imperfect development of the frontal border in early life, rather than to insecure fixation of the gland or to clumsiness in falling, as has been suggested.

R. J. COULTER.

(7) **Cabannes** and **Villemont** record two cases of lacrymation caused by maxillary sinusitis. They consider the following points to be characteristic of the condition :—(1) The onset is sudden and occurs at the same time as, or shortly after, the onset or exacerbation of the sinusitis. (2) The lacrymation is most troublesome in the morning, and in connection with efforts accompanied by congestion of the face, especially fixation of near objects, but is little influenced by external stimuli, *e.g.*, wind, light, heat. (3) The tears pass away freely by the nasal duct. (4) There is no dacryocystitis. (5) The lacrymation ceases when the sinusitis is cured. (6) The patients are frequently of the nervous type. The authors quote cases of lacrymation due to dental irritation, and in explanation of the occurrences, point out that it has been experimentally shown that excitation of the sensory fibres of the superior maxillary branch of the fifth

nerve, which give off an anastomosing branch to the lacrymonasal nerve, causes lacrymation, and that the superior maxillary supplies sensory fibres to the maxillary sinus through its posterior dental branches. R. J. C.

(8) In a short paper **Fejér** discusses the ætiology and treatment of purulent affections of the lacrymal sac of the newborn infant, The author's experience is not very large—seven cases—but it is sufficient for him to disagree with, or to support, Critchett, Rochon-Duvigneaud, Jocqs, König, and others. In his cases suppuration began a few days after birth, and he treated all of them by canaliculotomy, followed by probing, for two or three weeks, in one case for two months. PERCIVAL J. HAY.

III.—THE CORNEA.

(1) **Chesneau.**—A contribution to the study of a form of parenchymatous sclerosing keratitis, probably tubercular. (Contribution à l'etude d'une forme de kératite parenchymateuse sclérosante, probablement tuberculeuse.) *Ann. d'Oculistique*, T. CXXXIII, p. 412, juin, 1905.

(2) **Franke, E.**—On diseases of the corneal epithelium. (Ueber Erkrankungen des Epithels der Hornhaut.) *Klin. Monatsbl. f. Augenheilkunde*, Juni, 1906.

(3) **Nedden, M. zur.**—On some rare forms of infectious keratitis. (Ueber einige seltene Infektionskrankheiten der Hornhaut.) *Klin. Monatsbl. f. Augenheilkunde*, Juni, 1906.

(4) **Herbst.**—A remarkable developmental anomaly of the eyes (a band between cornea and pars iridica retinæ). [Eine auffallende Entwickelungsanomalie der Augen (strangförmige Verbindung zwischen Hornhaut und Pigmentblatt der Iris).] *Klin. Monatsbl. f. Augenheilkunde*, Juni, 1906.

(5) **v. Hippel, E.**—On congenital defects of Descemet's membrane. (Ueber angeborene Defektbildung der Descemetschen Membran.) *Klin. Monatsbl. f. Augenheilkunde*, Juli-August, 1906.

(6) **Hirsch, Camill.**—Is the fœtal cornea vascularised? (Ist die fœtale Hornhaut vaskularisiert?.) *Klin. Monatsbl. f. Augenheilkunde*, Juli-August, 1906.

(7) **Pes, O.**—Some peculiarities in the structure of the human cornea. (Ueber einige Besonderheiten in der Structur der menschlichen Cornea.) *Archiv f. Augenheilk.*, August, 1906.

(8) **Chance, Burton.—A case of vertical keratitis with a filamentous formation of the detached epithelium.** *New York Medical Journal*, August 18th, 1906.

(9) **Lauber, H.—On the origin of corneal papillomata.** (Beitrag zur Erkenntniss der Entstehung der Hornhautpapilloma.) *Zeitschr. f. Augenheilk.*, September, 1906.

(10) **Wehrli, Eugen.—On the histology of keratitis punctata superficialis (Fuchs), keratitis subepithelialis (Adler).** [Zur Histologie der Keratitis punctata superficialis (Fuchs), Keratitis subepithelialis (Adler).] *Klin. Monatsbl. f. Augenheilk.*, September, 1906.

(11) **Dugardin.—Serous cyst of the cornea.** (Kyste sereux de cornée.) *La Clinique ophtalmologique*, 25 septembre, 1906.

(12) **Steiger, A.—Studies relating to the hereditariness of corneal curvature.** (Studien über die erblichen Verhältnisse der Hornhautkrümmung.) *Zeitsch. f. Augenheilk.*, September-Oktober, 1906.

(13) **Nedden, M. zur —On the etiology and treatment of corneal opacities due to lime and lead.** (Ueber die Aetiologie und Therapie der Kalk und Bleitrübungen der Hornhaut.) *Arch. f. Augenheilk.*, Februar, 1907.

(1) **Chesneau**, after a rapid *résumé* of what is known of tuberculosis of the cornea, gives notes of seven cases of nodular parenchymatous keratitis preceded usually by episcleritis or scleritis and running a sluggish course tending towards sclerosis without involvement of the iris, which he considers to have been tuberculous in origin. The affection occurred almost entirely in females from 24 to 28 years of age of a strumous diathesis, but without any signs or family history of tuberculosis. It tended to become cured, leaving satisfactory even perfect vision, and appeared to be much benefited by subconjunctival injections of air, in addition to tonic treatment. R. J. COULTER.

(2) The loosening of the corneal epithelium, so that it may be detached easily, has been observed in such affections as herpes corneæ, dendritic ulcer, keratitis disciformis, ulcus serpens, and, above all, in traumatic recurring erosion of the cornea. The same condition was found by **Franke** to be quite common in fresh superficial lesions of the cornea, *e.g.*, erosions due to a scratch, and in cases of foreign bodies. He was able, by means of a blunt instrument, to remove the epithelium to a greater or lesser extent beyond the primary seat of the injury. The microscopical examination of such removed epithelial shreds

showed an inter- and intracellular œdema, changes in the structure of the cell nuclei, and in some places cavities which contained shed epithelial cells. As regards treatment of recurring erosions, **Franke** recommends scraping of the cornea, to be followed by painting with chlorine water. C. MARKUS.

(3) **zur Nedden** describes first the primary marginal ulcers of the cornea which he has met with in 75 cases; they were all due to the bacilli bearing the author's name. The ulcers are called 'primary' on account of the absence or insignificance of conjunctival inflammatory symptoms. The affection was mostly unilateral and occurred chiefly in adults. Health-lowering influences that prepare the soil for the action of the bacilli or their toxines, appear to be as necessary in this as in other infective diseases. Moreover, the same keratitis may be produced by other agents, such as staphylococci, diplobacilli, but, at least in the Rhine province, zur Nedden's bacilli must be held responsible for the majority of cases. zur Nedden has seen four cases of severe hypopyon-keratitis—which were due to Petit's diplobacilli. These microbes resemble Morax-Axenfeld's diplobacilli so closely that some authors are inclined to regard them as identical. But zur Nedden does not endorse this view. He insists upon the cultural differences, and upon the fact, that in Bonn, no case of corneal ulcer caused by Morax-Axenfeld's bacilli was ever observed, although there diplobacillary conjunctivitis is far from uncommon (see, on the other hand, Paul's paper, of which an abstract is to be found in THE OPHTHALMOSCOPE, 1905, p. 630.) An otherwise healthy child, *æt.* 2 years, was affected with a slight bilateral conjunctivitis, and in one eye with a purulent hypopyon-ulcer of the cornea. Influenza bacilli were found to be the cause of the disease, which took a favourable course.

C. MARKUS.

(4) **Herbst** observed in both eyes of a school girl a pigmented strand of tissue passing from the pupillary margin towards the cornea. In one eye this band was actually attached to a darkly pigmented spot at the back of the cornea. In the other eye it had evidently lost its connection with the cornea, for, though it ended freely, the former point of insertion was marked in the same way as in the first eye. Apart from these bands, there were irregularities of the pupillary margin, formed by several small projections of the pigmentary layer of the iris. Herbst is not able to account definitely for his observation, but he rejects the conception of this anomaly being an instance of congenital anterior synechia formed by a persistent pupillary membrane, for the reason that the bands originated distinctly from the pigmentary layer of the iris. C. MARKUS.

(5) v. **Hippel's** paper contains a criticism of the contribution of Peters, which has appeared lately under the same heading (for abstract *see* THE OPHTHALMOSCOPE, 1906, page 476). Without going into the details of his argument it may be stated that v. Hippel objects to Peters' conception of his case being due to mal-development, and he gives his reasons in favour of an inflammatory process during the last months of intra-uterine life. C. MARKUS.

(6) **Hirsch** injected the vascular systems of numerous pig embryos with a view to ascertain the vessel supply of the cornea. His careful investigations led him to the conclusion that the widely held opinion of the fœtal cornea being vascularised was erroneous and should be abandoned. C. MARKUS.

(7) **Pes** has studied the connective tissue elements of the cornea in the eyes of rabbits and guinea pigs and in human eyes. His observations have led him to the following conclusions :— 1. The protoplasmic processes of Toynbee's cells merge imperceptibly into and become transformed into fibrils of elastic or connective tissue. 2. The thickness of a corneal lamella is very much less than is generally supposed and measures about 1 mm. Each lamella is composed of bundles of fibrils running parallel to each other and in a straight line. 3. The structure of the lamellæ necessitates the protoplasmic processes of Toynbee's cells adopting a straight course soon after leaving the bodies of the cells. PERCIVAL J. HAY.

(8) This case appears to **Chance** to have been one of neuropathic disease of the cornea, associated with a lithemic or rheumatic diathesis. He conceives it to have been somewhat of the order of herpes, involving at first a single locality. He says: "Because of a great loss of the protecting epithelium, there was excited a general œdema of the cornea. The loosened epithelium hindered the steady onward flow of the serous fluid so that it escaped from the lamina, and was held beneath the epithelium in the form of droplets." C. A. O.

(9) **Lauber** recounts the histories and microscopic appearances of two cases of papilloma of the cornea, of whom one patient had had trachoma and the second had had a lime burn. He also reviews the cases already published and comes to the conclusion that these papillomata arise upon a basis of old vascularization the result either of inflammation or traumatism, either directly in the form of a vascular network or papilla, or indirectly as a growth of scar tissue irritated by the chronic inflammatory process. A. LEVY.

(10) **Wehrli** performed abrasion of the cornea in two cases of keratitis punctata superficialis. Besides seeing a good therapeutical result from this operation, he was enabled to

study the microscopical changes in that affection. They consisted chiefly in multiple conglomerations of lymphocytes within the deepest layers of the corneal epithelium immediately above Bowman's membrane. The epithelium near the foci showed signs of disintegration. Only slight changes were found in Bowman's membrane and the corneal tissue proper, and bacteria were looked for in vain. C. MARKUS.

(11) In a man of 42, there had existed for nine months at the inner part of the left cornea, a semi-transparent vesicle, measuring 5 mm. long, by 2 mm. broad, by 5 mm. high. The cornea around the cyst was quite clear. There was no trace of pterygium, and no conjunctival injection. Excision of the cyst, which contained a slightly turbid fluid, revealed the fact that it was due to a simple elevation of the epithelium. The site was superficially cauterized, and there was no return of the cystic condition.

The cyst had developed without known cause. There had been no traumatism. **Dugardin** is unable to offer any explanation. ERNEST THOMSON.

(13) **zur Nedden** finds that lime produces no precipitate in chemically pure solutions of albumin, whereas lead acetate and other metallic salts do, so that corneal opacities produced by lime cannot consist of calcium albuminate. Further, if liq. calcis is added to serous or ascitic fluid or to fluid removed from a hydrocele, a delicate white deposit is formed, which consists of calcium carbonate, and not of albuminate. Experiments with egg-albumin lead to similar results. The author confirms the view of Rosenthal, according to which the opacities in the cornea are caused by the action of lime upon the mucoid substances contained in the former. Concentrated solutions of sodium hydrate, or ammonia, produce a dense white opacity in mucoid substances, which is not a precipitate, but is caused by a chemical change, effecting a kind of solution of the mucoid material. Liq. calcis has the same effect. As regards the inorganic substances in the cornea which may be acted upon by lime, sodium carbonate is the only one which need be considered. The carbonate of lime produced contributes to the formation of the opacity, but only to a slight extent. As time goes on, however, the calcium held in solution by the mucoid material is also changed into carbonate of lime. As regards the lead opacities of the cornea, they are also at first inorganic, to be replaced in the end by the more insoluble carbonate of lead. The difference between the opacities due to lime and those due to lead lies in the circumstance that the former dissolves the mucoid material, whereas the latter precipitates it. In dealing with the therapeutic side of the question, the author reports some encouraging results with ammonium tartrate, which he

finds can clear up the lime opacities to a considerable extent, if treatment is begun early. It requires to be neutralized with a few drops of liq. ammon., and is applied in the form of a bath (5-10 per cent) thrice a day. The effect upon the lead opacities is not so good, as the muco-lead combination is replaced very early by carbonate of lead. The best treatment for the latter cases is to scrape away the deposit, when an almost clear cornea will be found underneath. PERCIVAL J. HAY.

IV.—ENUCLEATION OF THE EYEBALL UNDER LOCAL ANÆSTHESIA.

(1) **Bruns, H. S. and Robin, E. A.—Preliminary note on enucleation of the eyeball under local anæsthesia.** *Annals of Ophthalmology*, October, 1906.

(2) **Siegrist, A.—Local anæsthesia in evisceration and enucleation of the eye.** (Lokalanæsthesie bei Exenteratio und Enucleatio bulbi.) *Klin. Monatsbl. f. Augenheilkunde*, Januar, 1907.

(3) **Ellis, E. K. and Langworthy, H. G.—Enucleation of the eye with cocaine anæsthesia; subjective sensation on severance of optic nerve.** *Archives of Ophthalmology*, January, 1907.

Readers of THE OPHTHALMOSCOPE have become familiar with the fact that a reaction against the employment of general anæsthesia during the performance of removal of the eye has set in in certain quarters, as witness the recent communications of Otto Meyer (THE OPHTHALMSOCOPE, February, 1906, p. 95) and Terrien (*Ibidem*, September, 1906, p. 520). The introduction of new and improved local anæsthetics has rendered the procedure feasible. Moreover, the present anomalous state of the law in France, which appears to hold a surgeon directly responsible for the death of a patient under chloroform, ether, etc., unless the patient has first been expressly warned as to the dangers inseparable from the induction of general anæsthesia, has led to considerable attention being paid in that country to local anæsthesia in removal of the eyeball.

Bruns and Robin, Siegrist, and Ellis and Langworthy are the latest writers to advocate local anæsthesia under the circumstances. **Siegrist** (2), who advises it in evisceration as well as in enucleation, proceeds in the following way:—after the instillation of cocaine and adrenalin, a fold of conjunctiva, together with Tenon's capsule, is taken up with forceps above,

below, and to either side of the cornea, and at each place 0.75cc. of a 2 per cent. solution of novocaine, containing adrenalin, is injected by means of a syringe, provided with a bent needle, which adapts itself to the curvature of the globe. In this way it is possible to reach the ciliary nerves at the posterior pole of the eye. The operation is commenced one to two minutes after the injection; and it is claimed by Siegrist that even inflamed eyes can be removed without pain. **Ellis** and **Langworthy** (3) give details of three cases where enucleation was performed under cocaine—a 4 per cent. solution being dropped into the eye, and a ½ per cent. solution being injected along the four recti muscles—in patients aged respectively 72, 31, and 12 years. On division of the optic nerve, two of the patients complained of a flash of white light, followed immediately by a sensation of total darkness. The authors conclude that in intelligent patients the operation under local anæsthesia is almost painless, and perfectly justifiable when the patient is afraid of ether. Indeed, they go further, and on the ancient principle of abusing the plaintiff's attorney, claim that ether "with the sense of suffocation that accompanies the administration of it, and the nauseating effects that generally follow it, is a rather unnecessary hardship" in simple enucleations. In their opinion, 1 per cent. holocaine should be substituted for cocaine if the eyeball be inflamed. In very young patients, however, they are constrained to admit that general anæsthesia is, for obvious reasons, imperative in enucleation of the eyeball. **Bruns** and **Robin** (1) have operated on 20 cases under local anæsthesia, for which purpose they use the following mixture: ten drops of 4% cocaine, ten drops of adrenaline chloride, 1:1000, and twenty drops of normal saline. Ten drops of this mixture are injected along each rectus muscle, behind the equator of the eye. The operation is performed after waiting for five minutes. The method, they claim, is thoroughly practicable, although not wholly devoid of pain. SYDNEY STEPHENSON.

V.—A NEW OPERATION FOR GLAUCOMA.

Holth, S.—**Iridencleisis anti-glaucomatosa.** *Annales d'oculistique*, mai, 1907.

Holth considers that the exceptional good results, which at times follow operations for chronic glaucoma, in which there has been some irregularity in the *technique* or the healing are due to a permeable condition of some part of the cicatrix, as evidenced

by the presence in such cases, over one or both of the extremities of the scar, of a slight bulla, a little œdematous button, or a more diffuse subconjunctival œdema. He believes that this condition, which is usually known as a cystoid cicatrix or a filtering cicatrix, is caused by the incarceration of a fold of the iris in the wound, and prefers to call it a fistulous cicatrix, inasmuch as he has found in microscopic sections of an eye in which it was present a true fistulous passage lined by iridic pigmented epithelium. Acting on this belief, he has since August, 1904, when operating for glaucoma on eyes not in a state of inflammation, endeavoured to establish a direct connection between the iridic pigmented epithelium and the sub-conjunctival lymphatics by fixing in one or both of the angles of a sclero-corneal wound a fold of iris, covered with a conjunctival flap to safeguard it against infection.

In performing the operation he uses one of the following incisions:

(*a*) A flap incision to 10 mm. long (Fig. 2). The conjunctiva being punctured with a von Graefe knife 5 mm. from the limbus and the knife pushed under it the sclera is punctured 1 mm. from the corneal margin. The counter-puncture is similarly placed, care being taken to keep beneath the conjunctiva for 5 mm. In completing the incision, the edge of the knife is turned backward, so as to make a 5 mm. conjunctival flap. This incision should be avoided in very hard eyes, since it may be followed in them by expulsive hæmorrhage.

(*b*) An incision as in anterior sclerotomy (de Wecker) with 5 mm. conjunctival bridges (Fig. 3): The puncture and counter-puncture are made 3 mm. above the horizontal meridian the conjunctiva being treated as in (*a*). This incision is not recommended, as the incarceration often causes considerable astigmatism with oblique axes.

(*c*) A 6 mm. linear incision (Figs. 4, 5 and 6). The eye being rotated strongly downwards, the conjunctiva is pierced with a keratome 8 to 10 mm. from the corneal border, and the knife pushed downwards with zigzag movements between the conjunctiva and the sclera until it is 1 mm. from the corneal margin, when the scleral puncture is made and the knife is pushed forwards parallel to the iris until the incision is 6 mm. long. Care should be taken not to enlarge either the sclero-corneal or the conjunctival wound by sideward movements of the knife. The author recommends a stop keratome bent at an angle of 135° with a 6 mm. base and a length of 6 mm. from base to point. He stands facing the patient for either eye, and holds the knife with its point towards him, his hand being supinated and slightly flexed. This incision can be employed

on very hard eyes, and owing to the conjunctival flap is safeguarded against infection of the iridic tissue.

Holth has performed the operation under the following conditions :—

I. In eyes previously iridectomised 11 times.

(*a*) Eight times through a 6 mm. keratome incision at one of the angles of the coloboma (Fig. 4) with six successes (restoration of normal tension) and two failures owing to the iris slipping back out of the wound during the first 24 hours.

(*b*) Once through a 6 mm. keratome incision downwards and outwards the coloboma being upwards and the incarcerated iris being snipped with a de Wecker's scissors. The position of the incision was chosen with a view to diminishing the astigmatism in a case of glaucoma following cataract extraction. This case is counted as unsuccessful although 14 months after the operation the tension was normal (28 mm.*) under eserine which had no effect before the intervention. The astigmatism was reduced from 14 D to 6 D and the vision increased from 5/36 to 5/12.

(*c*) Twice through one of the cuts of an anterior sclerotomy incision. In one of these cases the incarceration was downwards, the coloboma was upwards, the iris was not incised, and the tension, which was 50 mm. before operation, after remaining variable for two months in spite of treatment with eserine, finally became normal, and at the end of two years was still 28 mm. without myotics. In the other, the incarceration was made in one of the angles of an extra-sphincteric iridectomy, and the tension fell at once from 40 mm. to 28 mm., the vision rising rapidly from 5/60 to 5/12, and being 5/8 twenty-two months after the operation.

In all these cases the incarceration was produced by catching a piece of the iris in an iris forceps and pulling it into one of the angles of the wound. To insure getting a very small piece of iris, Holth uses a pair of forceps with a stop screw, which he sets so as to prevent the blades opening more than 2 mm. (Fig. 1). He has also tried a Tyrrel's hook and a repositer for producing the incarceration, but has given them up as too liable to injure the pigmented epithelium. If the conjunctival flap is troublesome, an assistant holds it down over the cornea with a special

* The tensions recorded in the article were measured with the Schiötz tonometer, which gives the following readings :—

For normal eyes, 22 to 31 mm. of Hg.

For eyes with chronic glaucoma, 22 to 31 mm. of Hg., with occasional rises to 8 mm. (exceptionally), 40 to 60 mm. of Hg. (usually).

For eyes with acute glaucoma, 60 to 80 mm. of Hg.

double hook, constructed so as to fit exactly into the wound (Fig. 4).

II. Combined with iridectomy 21 times.

(*a*) Twice through an anterior sclerotomy incision with extra-sphincteric iridectomy in the puncture and incarceration without

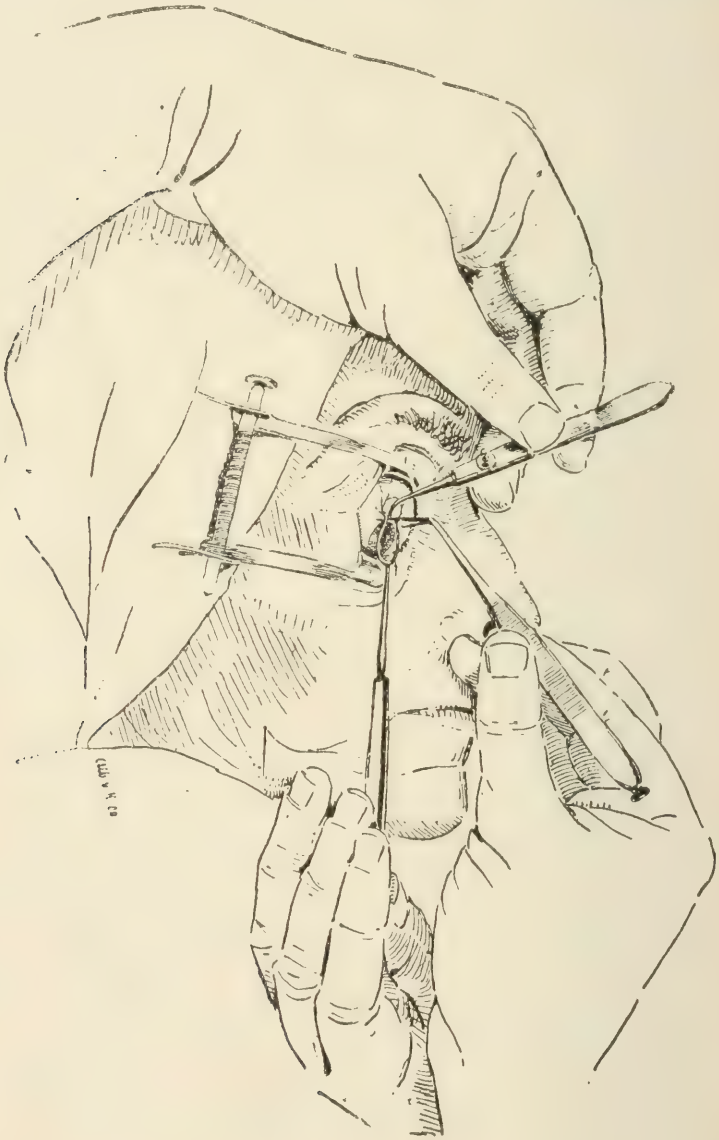

FIG. 1.

division of the iris in the counter-puncture (Fig. 3). After remaining variable for a couple of months, the tension fell to 28 mm. in each case, and has remained normal for two years.

(*b*) Once both iridectomy and incarceration in the puncture of an anterior sclerotomy. The tension fell at once from 55 mm. under eserine to 46-35 mm. with myotics and two months later became normal without myotics and continued so when last seen 22 months later. The field markedly increased and the vision improved from barely counting fingers to 5/36.

(*c*) Seven times through a 10 mm. flap incision with incarceration of each angle of the coloboma (Fig. 2). In all these the tension fell to 22-30 mm. and the vision had remained satisfactory up to the time of writing the article.

In these cases the incarceration was produced with iris forceps as in the ones in which iridectomy had previously been performed.

FIG. 2.

FIG. 4.

FIG. 3.

FIG. 5.

FIG. 6.

(*a*) Eleven times through a 6 mm. keratome incision (Fig. 5). The iris being seized at its pupillary margin and drawn out, a radial angular incision not too peripheral was made in it with a de Wecker's (or Dowel's) scissors with both points blunt, held with the blades perpendicular to a tangent to the plane of the wound and with the hinge upwards, so as not to divide the base of the flap (Fig. 1). The iridic flap was then pulled out so as to drag the periphery of the iris into the angle of the incision on each side, after which its base was divided. No myotics should be instilled on the morning of the operation. The incarceration was successfully produced in all the 11 cases. One patient remained under observation for 15 days only, in one

case the tension one year after operation was 34 mm. in spite of the presence of œdema over the site of operation, and in the remaining nine it remained under 30 mm., but in one of these the anterior chamber did not re-form, although the vision improved from 5/10 to 5/6.

III. Combined with iridotomy nine times.

(*a*) In one case of absolute glaucoma an operation similar to the last described was performed, but the flap of iris was not excised.

(*b*) In 7 cases a peripheral iridic flap, not including the sphincter, was formed (Fig. 6), by grasping a very small peripheral portion of the iris in the stop forceps set not to open more than 2 mm., drawing it out and dividing it radially as in the two operations last described, taking care not to cut to the extreme periphery, but to leave a small portion of the base of the iris to be folded into the angles of the wound by pulling on the flap. In 6 of these cases the tension at once fell to normal. The seventh was only partially successful, probably because the iris was divided too peripherally, but subsequently had a second operation which was quite successful.

(*c*) In one case a 6 mm. keratome incision was made, the iris was drawn out and a meridional incision made from the pupil to the base. The angles returned of their own accord into the anterior chamber leaving the periphery in the wound, and the tension fell from 80 mm. to 25 mm.

In the after-treatment Holth uses the open method, simply covering the eye with a perforated shield kept in position by strips of plaster. In order to avoid the action of light on the pupil he keeps the patient in a dark room for four days.

To sum up, the article is based on the records of 41 operations : 11 for absolute glaucoma, 28 for chronic glaucoma, 1 for subacute glaucoma after the attack had been relieved by eserine, and 1 for chronic uveitis with tension. One of these is negligible, as the patient remained under observation for two weeks only, in 2 cases the iris did not remain incarcerated, in 4, in spite of correct operations, no permanent conjunctival œdema was produced, and the tension although reduced remained above normal (in one of these the tension became normal under eserine which had no effect on it before the operation), and in the remaining 34 (= 85 per cent.) persistent conjunctival œdema with normal tension resulted, thirty times immediately and four times at varying intervals during the first two months, 3 of these 4 cases being the ones in which the iris was not incised.

In one interesting case the author, instead of having the conjunctiva held out of the way with a hook, dissected off a flap and turned it down over the cornea during the performance

of the rest of the operation, replacing it afterwards, and fixing it in position with two sutures. After healing, the area of the flap became gradually distended into a large bulla, which burst some months later, when the anterior chamber became empty and did not form again until the conjunctival cicatrix had been divided subconjunctivally, thus showing that the cicatricial tissue interfered with the lymphatic current. The author records this case as a clinical proof of the existence of a fistula, and as showing that it is advisable to avoid the formation of a bulla, which can be done by placing the conjunctival scar as far as possible from the limbus, making the incision as short as possible, and freeing the conjunctiva with the knife, not with scissors.

In reply to the possible objection that the reduction in tension is not due to the incarceration, the author quotes the 11 cases which had previously had iridectomies without benefit, and states that he has examined with the tonometer numerous iridectomised glaucomatous eyes and found the tension in them, as a rule, high except during the first three or four weeks after the operation. He has also in a patient with practically the same amount of increased tension in each eye (54 mm.) done a simple iridectomy on one (which was blind) and an iridectomy with incarceration on the other, with the result that the tension in the latter fell to about 24 mm., while in the former it was only reduced to 43 mm.

All infective conditions of the conjunctiva and lacrymal apparatus must, of course, be carefully treated before operating. The subsequent safety of the eye depends on the intactness of the conjunctival covering of the wound. In one case with chronic conjunctivitis, in which a bulla formed after incarceration of the iris, the eye was lost from panophthalmitis following traumatic rupture of the bulla three months after the operation; but another case of fistulous cicatrix with formation of a bulla survived an attack of purulent conjunctivitis occurring a year after the operation. Of minor complications, there was a temporary increase in the vitreous opacities in the case of chronic uveitis with tension; in 5 cases, one or two fine synechiæ formed, and in 4 cases there was a slight pigmentary deposit on the anterior lens capsule. These accidents, which occurred in the author's earlier cases only, can be avoided by making the conjunctival flap as deep as possible, operating rapidly, and by covering the iris quickly with the conjunctiva.

Holth claims that in the majority of his operations a permanent capillary fistulous passage was formed immediately, and that the formation of such a passage is a rational method for the treatment of chronic glaucoma inasmuch as it supplements the

normal excretory passages, which have become inadequate, by new passages in the same anatomical position. He considers that, although the easiest of the modifications described in his article is that of iridectomy through a keratome incision with incarceration in the two angles of the wound, the most elegant operation, and the one which best meets the requirements of conservative surgery, is that of incarceration combined with extra-sphincteric iridotomy, which leaves the pupil intact and causes a coloboma, which is so small as to be scarcely noticeable. He does not, however, recommend the procedure in acute or subacute cases, and in chronic uveitis with increased tension he prefers not to operate until the inflammatory process has subsided. In the early stages of chronic glaucoma he is content to rely upon treatment with myotics. R. J. COULTER.

VI.—POSTERIOR SCLERITIS.

Wagenmann, A.—Further remarks on posterior scleritis. (Weitere Mittheilungen über Skleritis Posterior.) von Graefe's *Archiv f. Ophthalmologie*, 64, 2, Juli 31, 1906.

Fuchs, in 1902, described a case of acute scleritis at the posterior pole of the eye; the disease took a favourable course. Similar cases have been since recorded by Schlösser and Peters, and **Wagenmann** himself had an opportunity of making a microscopical examination of an eye in which a small tumour of the posterior pole—thought at first to be of a malignant character—proved to be the result of scleral inflammation. He now gives his clinical notes on another case of posterior scleritis, which, considering the importance and rarity of the affection, should be carefully studied. The patient was a female, 46 years of age. The disease began about one month before admission with pain in the nasal region, swelling of the lids, and redness of the left eye. Considerable chemosis of the conjunctiva bulbi, which over-lapped about half the cornea, especially from above and from the inner side. Slight divergence of left eye. Proptosis and restriction of mobility towards the nose. Iritis. Counts fingers at 4 metres. Field concentrically contracted. Right eye normal but for a few dark precipitates. After dilatation of left pupil, extensive detachment of the retina was seen, which was practically circular, although steepest along the inner and upper part. The vitreous was clear. Within a fortnight the chemosis diminished and an equatorial thickening of the sclera could just be felt. The iritis healed, vision increased to $\frac{6}{12}$; the field grew larger; and the detachment completely disappeared.

There was a slight relapse of the latter, but ultimately the patient completely recovered. It seems probable that the detachment was partly due to the choroid participating in the inflammation locally and causing a circumscribed œdema of the retina. It is also interesting to observe that the refraction was, during the height of the process, slightly myopic, but reverted to emmetropia afterwards. This means that the inflammation led to a slight ectasia of the sclera in the part affected, which disappeared as recovery took place. R. GRUBER.

VII.—CONGENITAL WORD-BLINDNESS.

(1) **Fisher, J. Herbert.—Case of congenital word-blindness (inability to learn to read).** *Ophthalmic Review*, November, 1905.

(2) **Variot and Lecomte.—A case of congenital typhlolexia: congenital word-blindness.** *Gazette des Hôpitaux*, 30 octobre, 1906.

(3) **Claiborne, J. Herbert.—Types of congenital symbol amblyopia.** *Journ. American Med. Association*, December 1, 1906.

The several communications which head this review deal with congenital word-blindness, a curious condition first recognised and described in England. The original case has been and is still commonly attributed to W. Pringle Morgan (*British Med. Journal*, November 7th, 1896), but, as the present writer has pointed out elsewhere (*Reports of the Society for the Study of Disease in Children*, Vol. IV, 1904, p. 166), James Kerr, then medical officer to the Bradford School Board, and now attached in a similar capacity to the Education Department of the London County Council, had previously noted the existence of congenital word-blindness.

That the condition is not uncommon is attested by the important communication of C. J. Thomas, published in THE OPHTHALMOSCOPE of August 1st, 1905. That writer, as the result of his medical investigations into the physical and mental conditions of London school children, estimated that 1 in 2,000 of all children attending the London elementary schools might be expected to show a considerable degree of word-blindness. At the moment when Thomas wrote, nearly one hundred instances of word-blindness were noted in the case-books at the special metropolitan schools for the mentally defective. There appears to be no reason for believing congenital word-blindness

to be rare in countries other than England, although **Claiborne** (3) throws out the suggestion that it exists more frequently in English-speaking children, owing to the arbitrary pronunciation of their mother-tongue. In this connection it is interesting to recall the fact that one of the reviewer's patients, a sufferer from congenital alexia, made relatively more progress in the spelling of Latin than of English words, probably because the former is more phonetic than the latter language. Cases outside the British Isles have been published from America by W. E. Bruner and A. Schapringer; from the Argentine Republic by O. Wernicke; from Holland by C. S. Lechner; and now from France by **Variot** and **Lecomte** (2).

Fisher (1) remarks that cases of word-blindness are doubtless now and then mistaken for refraction cases in hospital, which accounts for most of the instances reported having been drawn from private practice. As the reviewer has elsewhere (*loco citato*, p. 167) remarked:—"Slight cases are almost certain to be overlooked in the hospital out-patient room, where surgeons are busily occupied, and parents seldom capable of giving a clear account of their children's ailments." **Fisher's** patient was a girl, aged 6 years, while the other cases reported by **Variot** and **Lecomte** and **Claiborne,** three in number, were in boys aged 9, 10, and 13½ years respectively. These figures are in accord with general experience, which is to the effect that about three-fourths of the cases so far reported have occurred in boys. These cases generally fall under notice at an age when the nature of their peculiarity would be forced on the attention of parents and teachers. The ages of 15 patients, analysed by the reviewer, ranged from 7 to 23 years, and averaged 13 years. **Fisher's** case, in a child of 6 years, appears to be the youngest yet recorded, and the difficulties of diagnosis at so tender an age would naturally be greater than in older children. **Fisher's** patient, moreover, was exceptional in yet another respect, since she experienced considerable trouble with figures, which is not usual in congenital alexia. As **Claiborne,** in reporting his second case, says: "When asked to make figures his whole demeanour changed, and he approached the desk cheerfully and with apparent confidence. He made figures accurately, knew them all, and did several small sums in addition and subtraction as quickly as any child of his age (9 years) could." **Variot** and **Lecomte's** patient, aged 13½ years, replied quickly and correctly to questions on the multiplication table, and did, without error, the addition and division of several figures.

A maternal uncle of **Fisher's** patient did not learn how to read until he was 10 years of age, and even in adult life spelled

"abominably," thus bearing out the contention of more than one writer on the subject, namely, that word-blindness may assume a family type. This tendency is shown in several of the cases recorded by Thomas (*loco citato*), who lays, indeed, especial stress upon the point. **Fisher** is evidently not familiar with Thomas's contribution (although it antedated his own by several months and was published in a British journal), for in discussing heredity in relation to congenital inability to learn how to read, he says: "I do not think any evidence in this direction has been elicited before, but such hereditary tendency seems not improbable."

Variot and **Lecomte** (2) report an altogether typical case—the first from France—and in doing so give minute and most interesting details with regard to the mental powers and physical development of their patient, a lad aged 13½ years. The latter enjoyed an excellent auditory memory, and his visual memory was equally good, except for printed or written words. This was, in fact, his only difficulty. He had been late in learning how to speak, and even at 5 or 6 years of age was by no means easy to understand. A neuropathic family history was also forthcoming, as in one of Wernicke's cases, where the father, an intemperate man, died insane, and an elder brother was weak-minded. The lad himself had always been of a nervous disposition. He slept badly, and (sure sign of a nervous temperament) had suffered from day and night incontinence of urine until he was 3 years of age. Everything the lad had to do in class, where he had only to listen, was well done. But the moment he was set to work at his books, he was unable to learn anything more. When by himself the lad seldom read, and during his week's stay in the *Hôpital des Enfants-Malades* he was not observed to read on more than two or three occasions, contenting himself the rest of the time by looking at pictures and gathering their meaning without having recourse to the text. Several of the case-histories of congenital alexia comment upon the fact that the sufferer never read for pleasure.

The intelligence of all the children was good. **Fisher's** patient is described as a "bright, intelligent child" with a good memory for facts; **Claiborne's** first patient was "fairly bright" and "played with other boys in the street in a normal manner," while his second patient was "a bright, smart, alert boy"; **Variot** and **Lecomte's** patient was obedient, docile, fond of domestic animals, and of good mental development. The sight was normal in **Fisher's**, as in **Variot** and **Lecomte's** patient. Refraction was emmetropic in one of **Claiborne's** patients, and not recorded in the other.

We know, of course, that improvement follows the careful

training of children who suffer from congenital word-blindness. Considerable bettering occurred in **Fisher's** patient during the course of ten months. The point is, unfortunately, not mentioned in the other reports.

Fisher and **Claiborne** both devote attention to the rational education of those who are affected with alexia. The former's views may be briefly summed up in the words: patience, perseverance, private tuition, and instruction in reading on what is quaintly but expressively called in kindergarten circles the "look and read" principle.* In this event, oral instruction in spelling would be required, and the use of a typewriter later in life is suggested as likely to help the patient to avoid blunders in orthography. According to **Claiborne,** such children should be differentiated and grouped, and the basis of the instruction should be repetition, coupled with patience. **Claiborne** further suggests that such children should be taught to become left-handed, in order that the speech, symbol, and sound centres on the right side of the brain may be cultivated to the exclusion of those on the left or as supplemental to the defects on the left. **Claiborne's** suggestion appears to the reviewer to be well worth putting into effect in a suitable case.

SYDNEY STEPHENSON.

VIII.—HETEROPHORIA.

Bielschowsky, A. and Ludwig, A.—The nature and importance of latent disturbance of the balance of the eyes, especially of the vertical deviations. (Das Wesen und die Bedeutung latenter Gleichgewichtsstörungen der Augen, insbesondere der Verticalablenkungen.) von Graefe's *Archiv f. Ophthalmologie*, 62 Band., Heft 3, 23 Januar, 1906.

Bielschowsky and **Ludwig** insist on the importance of a strict distinction between anomalies resulting from nervous causes ("Pseudo-Heterophoria") and cases of genuine defect of muscular balance due to mechanical, anatomical, and topographical causes. The difference is important from a practical

*The "look and read" or "look and say" system of reading, aims at getting the children to know the look of a word or of a series of words in a sentence. Each word, that is to say, is learnt as a whole. It is, in the reviewer's opinion, inferior to the phonetic methods, which give the children a mastery of the sounds that make the words, and thus enable them to construct words they may never have seen, and also to recognize unknown words when seen for the first time by means of the signs they know. Instead of this synthetic plan, the "look and say" method uses the analytic process. It proceeds from the whole to its parts.—S. S.

point of view, because operation for pseudo-heterophoria would only result in exchanging this condition for real insufficiency. Let us, for instance, consider a case of perfect balance for distant and latent divergence for near vision. Tenotomy of one or both lateral muscles will here cause convergence for distant vision, and may not even improve. The deficiency of convergence, as if this was considerable, the patient will not be able to see anything clear beyond the point for which the visual lines now converge. In true heterophoria, great differences are found at different examinations, according to the general condition of the patient. The method of testing in heterophoria, which authors describe, is the same as generally employed; but to find its full amount authors advise to produce a tendency for antagonistic fusion by prisms to relax the compensating innervation. With regard to the clinical importance of heterophoria, on which opinions so greatly differ, the practical experiences of authors are of much interest. They are reproduced in the following table, in which I refers to 171 perfectly normal individuals; II to 198 neuropathic ones, including 65 cases of epilepsy; and III to 30 patients with asthenopic trouble, without anomaly of refraction.

Heterophoria.	Horizontal.				Vertical.			
Degree of Deviation.	2° and more.	1° and more.	0·5° and more.	>0	2° and more.	1° and more.	0·5° and more.	>0
I Group (Normal)	19½%	33⅓%	47%	66%	3½%	6%	10½%	32%
II Group (Neuropathic)	13⅓%	36½%	48¾%	65½%	2%	4%	16%	29¾%
III Group (Asthenopic)	17¾%	42¾%	53½%	57%	3½%	17½%	25%	50%

It is very striking to see how closely the figures of the I and II Group agree, and that vertical deviations are by no means more frequent in neuropathic than in normal individuals. Authors consider it altogether incorrect to assume that a compensating innervation which the tendency for fusion may provoke is abnormal and harmful; it is really physiologically present in quite 75 per cent., and normal as long as the heterophoria does not exceed certain limits. It is no argument to refer to the sensation of discomfort and giddiness which orthophoric eyes feel if they look through even weak vertical

prisms; it is a quite different thing if a new innervation is forced on or if the same is gradually acquired by circumstances which are congenital or gradually developed during the period of natural growth. Authors think that slight heterophoria gives trouble only if the power of adaptation is reduced by fatigue, illness, or neuropathic disposition; but that at the same time a rational treatment of defects of ocular balance may sometimes improve the general condition and also certain localised nervous complaints.

The vertical deviations must be sub-divided into three essentially different groups: the *first* comprises cases of *strabotic* character, wherein the deviating angle is constant and independent of the movements of the eye (extreme positions excepted). Much more interest centres in the *second* variety of vertical deviation, which may be classified as "*paretic hyperphoria*," though there is one point which proves its origin to be not strictly paretic, as vertical movements do not alter the angle of deviation. This form of heterophoria is so interesting and practically important, that a somewhat more extensive reference to Bielschowsky's and Ludwig's paper seems desirable.

Paretic hyperphoria has three important characters:—1. That though vertical movements as just mentioned, do not, lateral excursions do, affect the angle of vertical deviation. 2. That the vertical meridians are deflected, thus that their relative inclination changes in inverted proportion to the increase of vertical deviation. 3. That, as a rule, lateral rotation of the head without change of fixation affects the amount of deviation. With regard to this last point, it must be remembered that rotation of the head causes reflectory rotation of the eyes in the opposite direction; this is effected by the action of the upper two muscles in one, and the lower two in the other, eye, which, as these muscles are antagonistic in every but a rotatory way, does not produce any deviation; it is different here as the paresis of one of the vertical muscles which are called on must necessarily affect the vertical position of this eye. This last symptom is not always present in paretic hyperphoria, but it is never wanting if the paresis affects one of the oblique muscles. It is well to remember that cases of genuine paresis of the vertical muscles show a tendency gradually to approach the symptoms just described in connection with hyperphoria. Especially in paresis of the trochlear nerve we see during the stage of partial recovery that the vertical divergence varies from the right to the left but not materially in looking downwards, and that the obliquity of the double images and the influence of the rotation of the head is exactly as in paretic hyperphoria.

The short rule for surgical treatment in these cases is given

by authors as follows: *operate on the vertical muscles of the eye which stands on the temporal side when the vertical deviation is largest.* If for instance the vertical deviation attains its maximum in looking to the left, we only have to choose between tenotomy or advancement of the left superior or inferior rectus, as the position of the left eye might be, but irrespectively whether the left or right eye is the faulty one. Authors advise the insertion of a suture through tendon and conjunctiva before dividing it. The thread is passed through the conjunctiva at the corneal margin and loosely knotted. Thus the effect of the operation can be modified at the first dressing.

The *third* type of vertical deviation is called "*alternating hyperphoria.*" In this interesting but rare form each eye deviates upwards if excluded from vision. In doing so it often makes slow pendulum-like vertical movements, while the fixing eye either remains perfectly steady or else makes slight nystagmic movements. The deviation remains absolutely confined to the covered eye and we have here therefore an exception to the law of symmetrical innervation of both eyes (law of association). These cases combine variously with other types but do not produce any subjective symptoms.

Authors finally discuss the question of cyclophoria, but doubt its practical importance. They consider cyclophoria extremely rare as an independent disease, and that most reported cases are due to other muscular defects. Deviation of the vertical meridians, which is of course physiological in convergence, need not cause any discomfort by itself and they do not think it necessary to enter into the question of its surgical treatment.

R. GRUBER.

IX.—THE OCULAR COMPLICATIONS OF INFLUENZA.

(1) **Gendron.—On two cases of ocular complications of influenza. Theories of Glaucoma. (A propos de deux cas de complications oculaires de l'influenza. Théories du glaucome.)** *L'Ophtalmologie Provinciale*, octobre, 1904.

(2) **Fortunati.—An ocular complication of influenza, which has hitherto escaped attention. (Di un fenomeno morboso dell'occhio dopo l'influenza non ancora segnalato.)** *Revista Italiana di Ottalmologia*, March, 1905.

(3) **Krall, John T.—Severe ocular pain associated with grippe.** *New York Medical Journal*, April 27th, 1907.

(1) **Gendron** records cases of the following ocular complications of influenza: 1. Metastatic choroiditis in a girl, 16 months old, followed by shrinking of the eyeball, which was excised. 2. Acute glaucoma in a woman, aged 60, cured by iridectomy. Discussing the ætiology of the last case he insists that glaucoma is not a separate entity, but a condition which can be set up in vascular diseases or circulatory disturbances of the eye, either infective, acute, or chronic. R. J. COULTER.

(2) **Fortunati** noticed in his own case, and in two others, that the act of accommodation was attended by severe pain. This was accompanied by redness of the supero-internal segment of the eye, which gave the impression of an attack of episcleritis. The segment of the iris corresponding to this area was observed to act rather sluggishly, but no definite inflammation of the iris was present. In Fortunati's own case, there persisted a slight paresis of the ciliary muscle, as shown by a failure of accommodation; in the case of Signora S. B. a considerable amount of astigmatism appeared, due, as Fortunati supposes, to the paresis of a part of the ciliary muscle. The explanation is, perhaps, a neuritis of a part of the nerves supplying the muscle

HAROLD GRIMSDALE.

(3) **Krall** says that there are an increasing number of cases of endemic influenza, which are complicated by a sudden seizure of excruciating pain located in the eyeball, lasting two or three days. This is unattended by any symptoms of inflammation, while the eyeball and its appendages present a normal appearance. He believes that the diagnosis in such cases is neuralgia of the ciliary nerves, due to toxins circulating in the blood acting upon the nerve centres or fibres. C. A. O.

X.—TREATMENT.

(1) **Cazalis. — On the pretended cure of cataract without operation.** (Sur la prétendue guérison de la cataracte sans opération.) *Ann. d'Oculistique*, T. CXXXIV, p. 43, juillet, 1905.

(2) **Bailliart.—The use of pilocarpine in ophthalmology.** (L'emploi de la pilocarpine en ophtalmologie.) *Bulletin Général de Thérapeutique*, 15 septembre, 1906.

(3) **Bull, Charles Stedman. — Treatment of progressive atrophy of the optic nerve due to acquired syphilis.** *Journal of the American Medical Association*, September 15th, 1906.

(4) **Pons y Marques.**—Note on the treatment of cataract by means of injections of potassium iodide. (Contribucion al tratamiento de la catarata por las inyecciones subconjuntivales de ioduro potasico.) *Archiv. de Oftal.*, Diciembre, 1906.

(5) **De Schweinitz, G. E.** — The treatment of gonococcic conjunctivitis, with special reference to the silver salts. *Therapeutic Gazette*, January, 1907.

(6) **Darier, A.**—Serum therapy of infective corneal ulcers. Roux's serum. Roemer's serum. (Sérothérapie des ulcères infectieux de la cornée. Sérum de Roux. Sérum de Roemer.) *La Clinique Ophtalmologique*, 10 février, 1907.

(7) **Wicherkiewicz, B.**—Some considerations about novocain anæsthesia in eye diseases. (Einige Betrachtungen über Novokain Anästhesie in der Augenheilkunde.) *Wochenschrift für Therapie und Hygiene des Auges*, 14 Februar, 1907.

(8) **Senn, A.**—A warning against the unrestrained use of dionin in glaucoma. (Warnung vor dem uneingeschränkten Gebrauche von Dionin bei Glaukom.) *Wochenschrift für Therapie und Hygiene des Auges*, 7 März, 1907.

(9) **Parker, Frederick P.**—Treatment of conjunctivitis trachomatosa relative to sequelæ. *Medical Fortnightly*, 25th March, 1907.

(10) **Woodruff, H. W.**—The treatment of serpent ulcer of the cornea. *Journal of Ophthalmology and Oto-Laryngology*, April, 1907.

(1) **Cazalis** relates two cases in which travelling quacks pretended to cure cataract without operation. In one of these there was a hypermature cataract with fluid cortex, allowing a small nucleus to fall downwards, and leave a certain amount of clear pupil above, when the eye was under atropine; while in the other there was a hard movable cataract which had also sunk, leaving some of the pupil unobstructed when under atropine. In each case the patient's vision was temporarily much improved by using atropine drops, but operation was required to give permanent benefit. R. J. C.

(2) **Bailliart** points out that, apart from its local application, pilocarpine seems to have gone out of favour. He urges its more frequent employment by hypodermic injection in exudative choroiditis, retinal separation, myopia, retinal hæmorrhages, interstitial keratitis, and toxic amblyopia. Bailliart injects from

six to ten milligrammes of nitrate of pilocarpine two or three times a week, giving a total of ten or twelve injections.

ERNEST THOMSON.

(3) **Bull** says the treatment of syphilitic atrophy of the optic nerve is a subject which taxes all our patience and ingenuity. So unfavourable is the prognosis that the ophthalmic surgeon is ready to grasp almost any means which promises a solution of the problem. Surgical interference with the optic nerve itself has yielded such imperfect and inconstant results that it has been abandoned: the same remark applies to sympathectomy. The constant current, and even static electricity, have usually proved unavailing. Much, he says, has been claimed for the treatment by vibratory massage, but he has never personally known of a case of atrophy which has been benefited by this method. In advanced cases of syphilitic atrophy of the nerve he believes mercury administered internally to be useless, and it may do real injury. Roborant treatment, directed to the general health, in these cases sometimes aids in retarding the degenerative process. In regard to the employment of subconjunctival sublimate injections, he has arrived at the following conclusions: "1. Posterior subconjunctival injections of sublimate may be given with but little pain if the sublimate injection is preceded by the injection of cocain. 2. The conjunctiva should be incised and carefully separated from the episcleral tissue, and the injection made far back toward the apex of the orbit. 3. The eye need not be bandaged after the injection, but cold applications should be made for half an hour: and 4. This method of treatment of cases of atrophy of the optic nerve has, in my hands, proved of no more value than the usual routine treatment by mercury, potassium iodid, and strychnia, and offers no encouragement for its continued use." C. A. O.

(4) **Pons y Marques** has tried the method recommended by Verderau in the attempt to renew the transparency of the lens, and comes to the conclusion that there is no good to be obtained therefrom. HAROLD GRIMSDALE.

(5) In this hospital lecture **de Schweinitz** abandons both protargol and argyrol as substitutes for nitrate of silver in the treatment of gonococcic conjunctivitis in adults. He uses argyrol in *association* with nitrate on account of the property which the former possesses of floating up to the surface pus which has collected in conjunctival crevices, but regards nitrate as the sheet anchor. Two per cent. nitrate is swabbed over the everted conjunctiva and carefully neutralized, at least once a day. The paper also outlines the routine treatment of gonococcic conjunctivitis in general, and it is noteworthy that in ophthalmia neonatorum 25 per cent. argyrol is used continuously—constant

flooding of the conjunctiva—to the exclusion of nitrate, except when the symptoms do not abate quickly.

ERNEST THOMSON.

(6) In this article, **Darier** appears to take a less enthusiastic view than usual of the efficacy of serum therapy. He details two cases of severe pneumococcus infection of the cornea, in one of which, the anti-diphtheritic serum of Roux seemed to be effectual after other methods (notably cyanide of mercury subconjunctivally) had failed, and in the other, of which the same serum determined the cure of an ulceration which was hanging fire under argyrol dressings and paracenteses. As regards Roemer's anti-pneumococcic serum, Darier has failed to observe that it acts any differently from Roux's serum in corneal ulceration. It has given varying results in the hands of a number of authors. "It seems to result from all these observations that serum therapy cannot itself, in the majority of cases, bring about the cure of all infective ulcers. It is necessary to follow the clinical indications of each individual case, especially in the severe cases. For myself, three agents should be our first and most certain adjuvants, because they are absolutely harmless: (1) dionine in powder applied to the ulcer, (2) subconjunctival injections, (3) serumtherapy." ERNEST THOMSON.

(7) **Wicherkiewicz** has made some interesting clinical studies in the use of novocain. The drug, which is a fine white crystalline powder, was used in 1—2 per cent. solution. Briefly the points are as follow: novocain anæsthesia is somewhat slighter, but comes on as quickly and lasts as long as cocain anæsthesia. Novocain has no influence on the pupil or accommodation, and does not reduce tension. On the other hand, it seems to delay the healing of the wound in cataract extraction.* Novocain is specially suited for the infiltration method when the tissues are inflamed. Enucleation of a tender eyeball can be carried out painlessly. For this purpose the following solution is used:—Novocain 0·125, suprarenin 0·00016, sodium chloride 0·225, aqua dest. 25·00. ERNEST THOMSON.

(8) **Senn** is convinced that in many cases of glaucoma dionin does positive harm, and in one particular case upon which he experimented it was found that if dionin were applied to the eye when fully under the influence of eserine, the pupil widened and the tension rose. He ends a longish article in words which seem to mean, "If you must use dionin in glaucoma or secondary glaucoma, be cautious and critical; but you had much better not use it at all." ERNEST THOMSON.

* A similar charge was brought against cocaine by Mellinger.—EDITORS.

XI.—GIDDINESS IN PARALYSIS OF THE OCULAR MUSCLES.

Huguenin.—Der Schwindel bei Augenmuskellähmungen.
Correspondenz-Blatt f. schweiz. Aerzte, Januar 1, 1906, p. 2.

Intelligent patients suffering from ocular paralyses describe their sensations as those of rising upwards or falling downwards in an inclined plane. Vertigo occurs when the image on the retina of the affected eye is slanting, or above or below its normal situation. That is to say, paralysis of the external or internal rectus does not cause vertigo, this being produced only when the oblique muscles come into the question. A slanting retinal image causes the patient to believe himself in an abnormal position, and he shows this by his movements to correct it. A comparison with the feelings experienced on turning a curve on the railway (by people with sensitive nervous systems), in an earthquake, or on board ship, helps to explain the vertigo produced by ocular paralysis. There the changes in position cause a complicity of feelings, *e.g.*, optical sensations—slanting images on the retina, loss of balance from stimulation of the vestibular nerve in the labyrinth, altered sensations in the skin of the feet, in the bones, periosteum, joints, and muscles, nausea from stimulation of the vomiting centre which accompanies excitation of the vestibular nerve. Now, if later only one of these sensations is again produced, but by other means, as *e.g.*, slanting images on the retina produced by ocular paralysis, the whole train of sensations associated on a former occasion with this one are reproduced by the memory. That a slanting retinal image is alone sufficient to cause vertigo, can be demonstrated by artificial displacement of one eye by the finger, the other eye being covered, when a transient giddiness is experienced through the slanting pictures thus thrown on the retina.

From these incomplete observations, it may be gathered that possibly a more exact idea of the nature of vertigo may be obtained by the study of the sensations produced by ocular paralyses. ROSA FORD.

XII.—MISCELLANEOUS.

Bouchart. — Ocular migraine. (La migraine oculaire.)
L'Ophtalmologie Provinciale, T. III, p. 28, mai, 1906.

By ocular migraine **Bouchart** means headaches caused by uncorrected errors of refraction or by defects in the balance of the external ocular muscles. His article is a plea for the more careful study of heterophoria in France. R. J. C.

Laferrère.—Traumatic accommodative paresis. (Paresie accommodative traumatique.) *L'Ophtalmologie Provinciale*, T. III, p. 27, mai, 1906.

Laferrère records a case in which a blow of a piece of stick on the eye caused considerable defect in near vision. There was no discoverable lesion to account for the condition. The patient was treated by Faradisation and massage and was completely cured in six weeks' time. R. J. C.

Berard. — On preliminary iridectomy in cataract operations (de Wecker's extraction at intervals). [De l'iridectomy préalable dans l'operation de la cataracte (extraction espacée de de Wecker).] *L'Ophtalmologie Provinciale*, T. II, p. 138, décembre, 1905.

Berard urges the advantages of preliminary iridectomy in operating for cataract. R. J. C.

Wicherkiewicz.—Iridectomy for glaucoma and massage of the eye. (L'iridectomie anti-glaucomateuse et le massage de l'œil.) *Ann. d'Oculistique*, T. CXXXIV, p. 131, August, 1905.

Wicherkiewicz agrees with Dianoux* as to the value of early massage of the eye after operation for the cure of glaucoma in producing a filtration scar, but has found anterior sclerotomy useful only in simple glaucoma and prefers to it iridectomy which may be narrow but must be peripheral. He lays great stress on the superiority of a mixture of eserine, pilocarpine, and cocain over any single myotic. R. J. C.

Trousseau.—A case of subconjunctival osteoma. (Un cas d'ostéome sous-conjunctival.) *Ann. d'oculistique*, T. CXXXIV, p. 363, novembre, 1905.

Trousseau removed from the edge of upper lid of a man, 26 years old, a tumour the size of a cherry stone, which on examination was found to consist of cellulo-fatty tissue enveloping an almond-shaped piece of typical bone, measuring 5 mm. by 3 mm. The patient said that a tumour had been removed from the same locality when he was two months old. Trousseau considers that the tumour was congenital, and states that such formations are rare and that no other instance has been recorded of one occurring at the ciliary margin. R. J. COULTER.

**Ann. d'Oculistique*, fevrier, 1905.

Cirincione, Speciale.—Primary glaucoma due to occlusion of the pupil by the lens. Harmful action of miotics. (Glaucoma primario per occlusion del forame pupillare fatta dal cristallino; azione dannosa dei miotici.) *La Clinica Oculistica*, Marzo, 1905.

Manfredi many years ago showed conclusively that certain cases of secondary glaucoma were due to the occlusion of the pupil by the dislocated lens, and expressed the opinion that the pressure of the lens against the pupillary margin might be able to give rise to primary glaucoma. **Speciale Cirincione** records a case in which, he thinks, this was the probable origin of the increased tension. The patient, a man aged 45 years, was attacked by acute glaucoma; the instillation of a few drops of eserine was followed by intense pain. The operation of paracentesis was performed but no fluid was evacuated, and it was found necessary to follow this by an iridectomy. At the time of operation it was observed that as soon as the iris was drawn with the forceps to the wound, there was an abundant flow of fluid. A similar attack with intolerance of eserine in the other eye was also relieved by iridectomy. The points of interest in the history are—first, the absence of any escape of fluid when the anterior chamber was opened and the copious flow following the separation of the iris from the lens; and, secondly, the increase of tension which followed, in both eyes, the instillation of eserine.

HAROLD GRIMSDALE.

Consiglio.—A new form of ectropion uveæ. (Di una nuova forma di ectropion uveæ.) *Rivista Italiano di Ottalmologia*, December, 1906.

In the case which **Consiglio** describes, ectropion of the iris pigment was associated with entropion of the sphincter pupillæ and of the pupil margin. HAROLD GRIMSDALE.

Best, F.—Hereditary affections of the macula. (Ueber eine hereditäre Makulaaffektion.) *Zeitschrift für Augenheilkunde*, Mai, 1905.

Best gives the history and some plates of eight cases of macular degeneration occurring in the same family. He examined 59 members of this family and found in 31 some congenital anomaly of the eyes. Besides the eight cases above mentioned, there were cases of amblyopia, squint, nystagmus, lenticular opacities, high astigmatism, etc. There was no marked intermarriage in this family, although they all lived and married in a small village of about 2,000 inhabitants.

A. LEVY.

Bertram, E.—On exophthalmus. (Ueber Exophthalmus.) *Klin. Monats. f. Augenheilk.*, 1903, II, p. 294.

Bertram reports upon two unusual cases of exophthalmus. In the first, the patient was a girl of 12 years. An abscess of the left orbit had followed upon empyema of the antrum Highmorii. An opening was made at the lower edge of the orbit and the maxillary cavity evacuated, after which recovery followed. In the second case, the patient was a man of 47 years, who had a vascular sarcoma in the left temporal region. The dura was implicated in the growth, which had destroyed the bone of the skull, and had penetrated into the orbit through the fissura orbital. sup. An exact diagnosis could only be made *post mortem*.

A. BIRCH-HIRSCHFELD.

Kann, H. — Un lymphangioma cavernosum orbital. (Zur Kenntnis des Lymphangioma cavernosum orbital.) *Beiträge zur Augenheilkunde*, No. 65, März, 1906.

Kann's is the fifth case of this rare and interesting affection which has been anatomically examined. The symptoms are almost identical with those of cavernous angioma, the only difference, according to von Graefe, being fluctuation in size according to increase of blood pressure in angioma cavernosum. In Kann's case the removal of the tumour was conformable with retention of the eyeball, since there was a firm and fairly solid fibrous capsule, which could be felt *in situ*; otherwise the author cautions us against dealing with the tumour by the open method, and recommends electrolysis, which must be often repeated. Even then, recurrence after some time is almost the rule. In one of Kann's cases, optic atrophy supervened. He assumes that here the central artery was accidentally wounded.

R. GRUBER.

Parker, Judson.—Quinine amaurosis, with report on a case. (Chinin-Amaurosis mit Bericht über einen Fall.) *Arch. f. Augenh.*, Oktober, 1906.

Parker had the opportunity of obtaining a complete record of a case of quinine poisoning. Notes of the patient's vision, the pupil reflexes, the tension, the fundus, fields for white and colours, etc., were taken at frequent intervals. We may mention, that 240 grains were taken within 12 hours. Complete blindness followed along with many other symptoms. Final result: recovery. Peripheral vision lost permanently; full central vision regained in about four months.

PERCIVAL J. HAY.

Ewetzki.—The lava of a fly in the anterior chamber of the eye. (Zitshinka mouchi w perednei kamere glasa.) *Wiestnik Ophtalmologii*, No. 4, 1904, and *Rev. générale d'ophtalmologie*, 30 novembre, 1904.

Ewetzki describes a case where he found the larva of a fly in the anterior chamber of the eye, where it had set up a slight inflammation of the iris. No movements could be made out, although the larva changed its position in the anterior chamber. Ewetzki removed the insect by means of paracentesis, and the eye made a good recovery. The exact nature of the larva could not be identified.

A. Maklakow.

Demaria.—Pathogenesis of Amotio choroideæ iridectomy in glaucoma, and on corpora amylaceæ in the excavated papilla. (Zur Pathogenes der Amotio choroideæ nach Iridiktome bei Glaucom und ueber corpora amylaceæ in der escavierten Papille.) *Klin. Monatsbl. f. Augenheilk.*, 1904, p. 339.

Anatomical examination of this case showed that a direct connection existed between the anterior chamber and the perichoroidal space. This satisfactorily explains the origin of the amotio choroideæ. The communication appears to have arisen from an incision at the operation (glaucoma iridectomy). It may have been increased by changes in the region of the iris root, due to age.

The glands which filled up the excavation of the papilla gave an iron reaction, and are therefore probably to be attributed to hæmorrhages. A. Birch-Hirschfeld.

Natanson.—Absorption of the capsule after an atypical operation for cataract in a child. (Aufsaugung des Kapselsackes nach atypischer Staaroperation beim Kinde.) *Arch. f. Augenh.*, Februar, 1907.

Natanson's patient was a boy, aged two years and three months, with cataract in both eyes. Discission was performed with difficulty on both sides. The following day both lenses were found in the anterior chamber. Five days afterwards secondary glaucoma developed. Under chloroform the lenses were extensively incised, and the lens-matter partially evacuated. An attempt to extract the capsules was unsuccessful. After the operation, both capsules underwent rapid absorption, so that in three weeks almost nothing was left in the right eye, and in the left eye only a speck the size of a pin's head. In three months absorption was complete. Percival J. Hay.

REVIEW.

Rapport sur le Catarrhe Printanier. Par le Professeur AXENFELD (de Fribourg). Presented to the Société Française d'Ophtalmologie, Congrès de 1907. Paris: G. Steinheil, Editeur, 2, Rue Casimir-Delavigne, 1907. Price not stated.

Spring catarrh, according to Professor Axenfeld, was first distinguished as a special disease by Professor Arlt in 1846, and has since been described under various names. The terms applied to it, such as phlyctæna pallida, conjunctivitis hypertrophica, conjunctivitis verrucosa, circumcorneal hypertrophy, tarso-conjunctivitis, eczema solare, and fibroma, depending on the particular form observed by the surgeon, or on the view entertained of its ætiology. The term catarrhe printanier, that is, spring catarrh, was applied to it by de Wecker, and is a misnomer, since it by no means occurs only in spring, and the discharge is not a prominent symptom. It is a rare disease, and it is possible that more accurate knowledge may lead to further differentiation of diseases, really distinct but at present included under one head. Many points in regard to its origin, pathology, course, and treatment are very obscure, and much credit is due to Professor Axenfeld for giving in this Report not only the results of his own researches, but for collecting and criticising the views of nearly all those who have written upon it, and whose experience is of value.

The symptoms which have especially attracted attention in this affection are violent itching of the lids, photophobia, slight or moderate conjunctivitis, with some muco-purulent discharge, gelatinous swelling around the margin of the cornea, which is variable in the depth of its colour, pallor, often described as a milky aspect, of the inner surface of the lids, and the formation of numerous pedunculated and flattened papillæ, which appear on everting the lids, and which, although comparatively harmless seem calculated to excite violent inflammation of the cornea, especially as they are of very firm consistence.

There is a marked tendency to periodicity, lasting frequently, with spring and autumn exacerbations, for four, six, or more years consecutively, and the symptoms, including the papillæ, after resisting every kind of treatment, disappearing suddenly, leaving the cornea clear and vision perfect. It occurs chiefly in young persons about the age of puberty, but no age is exempt. The expression of the face is dull or inanimate, owing to slight ptosis caused by thickening of the lid. It appears to be non-contagious. Some observers have met with it, or perhaps

differentiated it, more frequently than others, but it is difficult to say whether or not it is endemic.

Minute granulations, resembling phlyctenula, have been noticed by several observers, but although they may occupy a similar position near the margin of the cornea they differ from true phlyctenulæ in never undergoing ulceration. The red discoloration, thickening, and gelatinous tumefaction, often noticed round the cornea, somewhat resembles episcleritis or tuberculosis, and in negroes, amongst whom it is common, often contains pigment. Events of rare occurrence in its history are opacification of the cornea in the form of an arcus senilis and a sclerotising keratitis. The discharge, according to H. Herbert, is remarkable for containing a large number of eosinophil cells, a feature that, of itself, he believes to be pathognomonic of the affection.

The ætiology of the disease, although much attention has been directed to it, is still in an unsatisfactory state. It is a natural suggestion that some kind of microbic infection is here in operation, but the most careful bacteriological researches have yielded only negative results, and the microscopical examinations of Haab, Fuchs, Knust, Raabe, Danurs, Seegers, Saemisch, Dekowski, Morax, Lafon, and of the Professor himself, have only shown the presence of saprophytes or of those germs which are ordinarily present in the conjunctival sac, and which experience has shown to be without the slightest ætiological significance.

The frequent occurrence and recurrence of the disease in spring, the relief experienced by patients in cold weather, and the increase in the severity of the symptoms on exposure to the heat of summer, has led some observers to refer to the direct action of the sun's rays, and in this point of view the cases of erythema that follow exposure to these rays should not be overlooked ; but it does not appear that change of climate, either by residence at higher elevations or removal to colder regions, is a constantly successful mode of treatment.

Professor Axenfeld has paid much attention to the pathology of the disease. He is of opinion that the primary alterations in the conjunctiva are to be sought for in the connective tissue, the epithelial changes, resulting in the formation of papillæ, being of a secondary nature. In a case described by his pupil Dekowski, the little swellings on the tarsus proved on microscopical examination to be true fibromata invested by a delicate epithelial layer, while the granulations of the conjunctiva were chiefly composed of epithelium, but this was not a typical case. Raymond found the papillæ to consist of a basis of connective tissue fibres with an investment of epithelial cells, and a large quantity of hyaline

substance. The origin of this hyaline substance has not hitherto been satisfactorily ascertained. Professor Axenfeld states, as the results of his observations, that the first changes take place in the connective tissue, the epithelium being only secondarily affected. In some parts the epithelium may indeed become thinned. When the excrescences, prominences, papillæ, or ragged wart-like bodies have formed, the epithelium at their summits consists of flattened cells, which becomes cylindrical where the bodies are in opposition to each other, and presents several layers. Various authors speak of the presence of a great number of mucous, or goblet cells, but Axenfeld has not met with them in unusual proportion. He has observed cavities in the epithelium filled with *débris* of cells and leucocytes.

In the regressive stage of the disease the connective tissue of the conjunctiva undergoes transformation into a hyaline substance and numerous *mastzellen* (granular cells of Ehrlich) make their appearance. Elastic fibres, the presence of which has been sometimes noted, he is not altogether indisposed to admit, but he seems to think their number has been exaggerated, except in the movable epi-tissue, and in a ring about 5 mm. from the margin of the cornea. He does not believe they enter largely into the structure of the papillæ. His opinion of the origin of the papillæ, then, is that they are produced by a neoplasia of all the lymphatic elements of the conjunctival tissue. The lymph cells do not develop as lymph follicles, but produce a considerable mass of plasma cells. The order in which the changes occur varies—sometimes they commence with a multiplication of the cells, at others there is a neoplastic formation of the connective tissue, followed by a degenerative process of hardening; in cases of long duration both processes may be observed. As regards the lacteal aspect of the conjunctiva little is known of it, save that the colour is given by a layer situated beneath the epithelium, and presenting fine white striæ, on or in which are numerous vessels.

Professor Axenfeld has, in conjunction with Dr. Schleip, made very careful examinations of the blood in regard to the proportion of erythrocytes and leucocytes, comparing and estimating the relative proportion of neutrophils, eosinophils, basophils, transitional forms, and the corpuscles of Bizzozero. The erythrocytes, in his cases, were but little altered in form or size, but lymphocytosis was generally distinctly marked associated with polyadenitis, which was not due to syphilis or to scrofula. Changes in the nasal mucous membrane were, however, of frequent occurrence and, both here and in the substance of the conjunctiva itself, he believes the formation of eosinophil cells takes place, from which the excess of eosinophil cell formation in

the blood may be derived. He found that there was, in eight cases most carefully examined, a lymphocytosis which was constant during the summer months, that is, during the progressive stage, but which disappeared during the winter, even though the proliferations were still visible, yet in other cases this was not observed, and, on the whole, he thinks great caution should be exercised in establishing an ætiological connection between the lymphocytosis and the disease under consideration.

Professor Axenfeld discusses the subject of treatment which, in the absence of certain diagnosis, and the doubtful pathology of the disease, is not in a satisfactory state. He first describes the method, which has received some support on the Continent, of effecting a cure by the exclusion of light. With this object in view, some have recommended dark glasses, and others occlusive bandages; the objection to the former, and, indeed, to the latter also, being that they are heating, whereas there is much evidence to show that exposure to heat is prejudicial, whilst coolness is advantageous in the treatment. In one case the symptoms were immediately relieved when the patient entered an ice-house, whilst the general history of the disease shows that as the warmer weather and brighter sun of spring and summer replace the cold and darkness of winter the disease becomes less frequent. Where the occlusion of light is beneficial (for this treatment has not proved effective in all cases) the ultraviolet rays assume capital importance. If these rays are allowed to fall upon any part of the skin, a certain limited area of which has been painted over with a solution of quinine, that area is protected from inflammation, and this appears to be due to the conversion of the ultraviolet into fluorescent rays. Professor Axenfeld was led to enquire from Professor Jacobi, of Freiburg, whether he could suggest an invisible varnish to be applied to the external surface of the lids, which should be sufficiently elastic to offer no obstruction to their movements, and yet should prevent the passage of the ultraviolet rays. Professor Jacobi replied by recommending the use of the "filmogen" of Schiff, but this has not yet been tried. The instillation of solutions of quinine, or their internal administration, is to be avoided.

There is a good bibliography at the end of the monograph, the whole of which may be read with profit by all who are interested in ophthalmic diseases, as containing a good account of an affection that is treated rather cursorily in most of the text-books.

HENRY POWER.

CORRESPONDENCE.

[While *The Ophthalmoscope* will at all times welcome correspondence from its readers, the Editors do not hold themselves responsible for any views expressed in this column.]

Postscript to Article on Glaucoma Operation in the June issue.

To the Editors of THE OPHTHALMOSCOPE.

SIRS,

Under the combined influence of adrenalin and cocaine the cornea dries very quickly. It therefore needs to be moistened more than once during the rather prolonged exposure. The first moistening should be immediately after the insertion of the speculum.

Note that the Figs. D and E on page 296 have been rather too much reduced in size.

Yours, etc.,

H. HERBERT, I.M.S.

NOTES AND ECHOES.

Obituary.

THE death is announced at the early age of 47 years, of Justice Llewellyn Barnes, a member of the staff of the Manhattan Eye and Ear Infirmary.

* * * *

Appointments.

WE gather from Hirschberg's *Centralblatt* for May last, that the Belgian Ophthalmological Society have nominated as honorary members Theodor Leber, Herzog Karl Theodor, and Julius Hirschberg. Professor Sattler, who delivered the Bowman lecture of the Ophthalmological Society of the United Kingdom the other day, has been nominated an honorary member of the Society. Dr. Demaria has been nominated *professeur agrégé* of ophthalmology in the University of Buenos Ayres. Dr. P. Bajardi has been appointed professor of ophthalmology in the University of Gênes. Dr. Cirincione has been appointed extraordinary professor of ophthalmology at Palermo. To Dr. Georg Weill has been accorded the title of professor in Strassburg. Dr Tatham Thompson has been appointed consulting ophthalmic surgeon to the Cardiff Infirmary, after completing a period of twenty years as ophthalmic surgeon to the institution. The managing body, in conferring this well-deserved compliment on Dr. Thompson, recorded its appreciation of the invaluable services rendered by him to the infirmary.

The Illegal Exercise of Ophthalmology in France.

THE *Syndicat Général des Oculistes français*, about which something was said last month in "Notes and Echoes," is keenly alive to the necessity of protecting the interests of its members. It has successfully prosecuted a Belgian oculist, named Bribosia, residing at Namur, for practising and operating in France. The Court inflicted a fine of 100 francs, and ordered the judgment to be inserted, at the defendant's charges, in several of the lay papers.

* * * *

International Congress on School Hygiene.

IN connection with the forthcoming Congress on school hygiene there is a section for the medical and hygienic inspection of schools. In this section the question of the inspection of the eye-sight of children will be discussed, and papers will be read on the subject. We also observe that in the exhibition connected with the Congress, ophthalmic appliances are included in the list. Delegates to the Congress will expect to see the latest improvements in these appliances. It is to be hoped, therefore, that the English industry will be well and worthily represented.

* * * *

A Disclaimer.

DR. ERNEST E. MADDOX, of Bournemouth, having seen a circular which he feels confident his colleagues would know to be foreign to his wish, asks us to state that he has lost control over any mode in which his little book on the ocular muscles may be published or advertised on the other side of the Atlantic. Dr. Maddox (who has our entire sympathy) tells us that the book in question was sold outright by the English publishers five years ago, when he last revised it.

* * * *

The Ophthalmological Society.

AN important decision was reached by the Council of the Ophthalmological Society on June 13th last with respect to the publication of the Society's *Transactions*, which hitherto have appeared but once in twelve months. Members are, for the future, to be given the choice of adhering to the old system or else of receiving the *Transactions* in three parts, one of which will appear about every three months. The publication of these *fasciculi* will obviously tend to the more speedy appearance of communications brought before the Society. There are, besides, incidental advantages about the new arrangement, into which we need scarcely enter here. We would simply congratulate the Society upon its enlightened move, which is all the more necessary as there may soon be a competitor in the field, in the shape of a section of ophthalmology belonging to the new Royal Society of Medicine.

The Bradford Eye and Ear Hospital.

THE Bradford Eye and Ear Hospital is henceforth to be known as "The Royal Eye and Ear Hospital." The more dignified title has been obtained owing in large measure to the personal influence and indomitable energy of Dr. Adolph Bronner, who has for many years been connected with the active staff of the institution. No provincial eye hospital is better entitled to the honour.

* * * *

May's "Diseases of the Eye."

WE understand that, in addition to the British, American, German, and Italian editions of May's well-known little book, a French and a Dutch edition are in the press. A Spanish edition is also to be issued by Dr. C. E. Finlay, who has recently been appointed professor of ophthalmology in the University of Havana. Such success must surely be almost phenomenal!

* * * *

Mr. Swanzy knighted.

CONGRATULATIONS to H. R. Swanzy, whose name is included in the list of Birthday Honours. Another knight has thus been added to the ranks of British ophthalmic surgeons.

* * * *

The Nettleship Prize.

THE Nettleship Gold Medal of the Ophthalmological Society has been awarded to Mr. J. H. Parsons for his book, *The Pathology of the Eye.*

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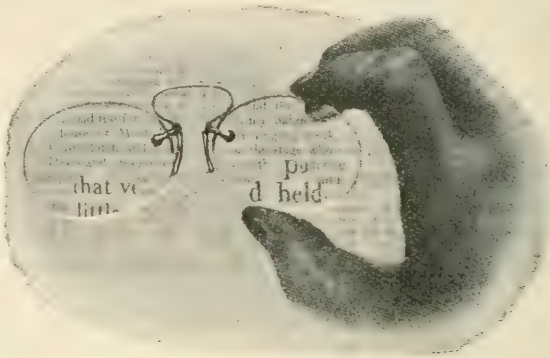

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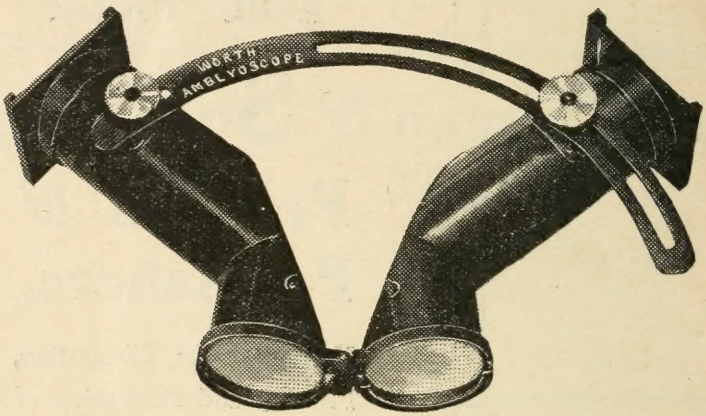

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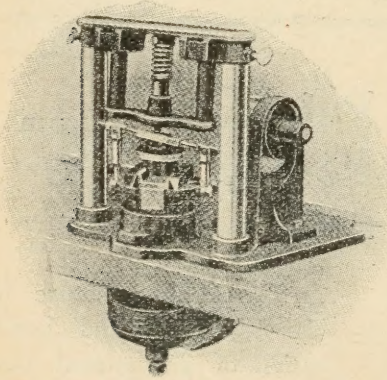

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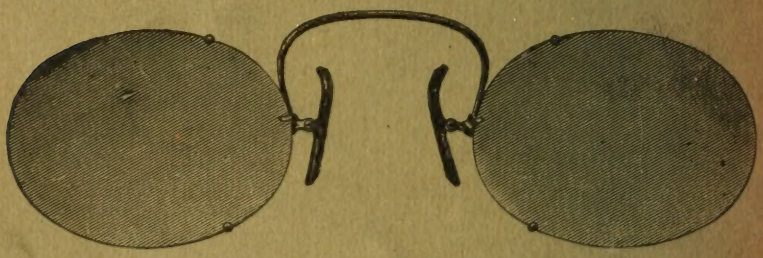

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